

Supplement to

THE MEDICAL JOURNAL OF AUSTRALIA

No. 17.

SATURDAY, DECEMBER 17, 1927.

SYDNEY.

Transactions of the Australasian Medical Congress (British Medical Association)

Second Session: Dunedin, February 3 to 10, 1927

the **PRODUCT BEHIND**
your **PRESCRIPTION**

When you write a prescription for Petrolagar you can do so with the utmost confidence that you are specifying a product of definite value, from both a pharmaceutical and therapeutic standpoint. This value has been established by the performance of Petrolagar in the practice of many thousands of Physicians.

Issued as follows:
Petrolagar, No. 1 (Plain)
Petrolagar, No. 2 (Phenolphthalein)
Petrolagar, No. 3 (Alkaline)
Petrolagar, No. 4 (Unsweetened, no sugar)

Petrolagar

DL

DESHELL LABORATORIES, INC., 2-8 Harrington Street, SYDNEY.

COMMONWEALTH



OF AUSTRALIA

Department of Health.

INSULIN

(Commonwealth)

is

PURE—STABLE—ACTIVE—STERILE

5 c.c. phial of 100 units 3/-
 Set of 12 ampoules, each ampoule containing
 10 units 5/6

Every batch of Commonwealth Insulin is tested before issue and the unit employed is identical with the standard issued under the authority of the League of Nations.

PITUITARY EXTRACT

(Commonwealth)

is

physiologically standardised in accordance with the League of Nations Technical Conference.

Standard Strength (for use in Obstetrics):

1 box of 6 ampoules, each containing $\frac{1}{2}$ c.c. 4/-
 1 box of 6 ampoules, each containing 1 c.c. 6/-

Double Standard Strength (for Surgical use):

1 box of 6 ampoules, each containing $\frac{1}{2}$ c.c. 6/-
 1 box of 6 ampoules, each containing 1 c.c. 10/-

TETANUS ANTITOXIN

(Commonwealth)

The Commonwealth Serum Laboratories prepare anti-tetanic Serum for prophylaxis and treatment of the disease.

For prophylactic purposes 1,000 to 1,500 units should be administered subcutaneously. To get the maximum prophylactic effect a second dose of antitoxin should be given one week after the administration of the first dose.

In treatment, very large doses of the Serum must be given at the earliest possible moment.

PERTUSSIS VACCINE

(Commonwealth)

for treatment of

WHOOPIING COUGH

Luttinger, Freeman and Saunders have all shown that prophylactic vaccination against Whooping Cough is highly effective. It has been found that the vaccine used curatively—

- (1) Lessens the severity of the attack;
- (2) Shortens the paroxysmal stage;
- (3) Reduces the mortality.

PERTUSSIS VACCINE (Plain) is supplied in four strengths: (a) 50 million organisms per cubic centimetre; (b) 400 million organisms per cubic centimetre; (c) 1,000 million organisms per cubic centimetre; (d) 5,000 million organisms per cubic centimetre.

PERTUSSIS VACCINE (Mixed) is available in two strengths: (a) and (b).

COMMONWEALTH SERUM LABORATORIES

ROYAL PARK—VICTORIA—AUSTRALIA

Transactions of the Australasian Medical Congress (British Medical Association)

Second Session: Dunedin, February 3 to 10, 1927

No. 17.

SATURDAY, DECEMBER 17, 1927.

SYDNEY.

SECTION IX.—PEDIATRICS.

ULTRA-VIOLET LIGHT AND CHILDREN.

By H. GRAHAM ROBERTSON, C.B.E., F.R.C.S.E.,
Wellington, New Zealand.

(Continued from page 512.)

I again emphasize the fact that, save in a few well known directions, ultra-violet light replaces nothing and is an adjunct of varying value to tried and proved remedies, therapeutic and surgical. In the former class, let me instance rickets. It has been shown that ultra-violet light alone, with co-existent unfavourable dietetic conditions, can cure developing rickets. Let me mention here that in Vienna they consider it necessary to irradiate only a limb, a very small area of skin relatively, as opposed to our general irradiation, to produce their desired results. So with hypothyroidism and althrepsy and other growth disorders, for example, osteomalacia, achondroplasia *et cetera*. So with tetany and spasmodophilia, in addition to calcium bromide and any necessary specific treatment.

In tuberculosis of bones and joints, ultra-violet light is definitely the treatment of choice, as in surgical tuberculosis generally.

It is marvellous at times to see the enlarged cervical glands in children melt away under its persuasion, with resultant freedom from operation and its scars. In tuberculosis of serous membranes, the larynx and skin also, it has proved its value, tuberculous peritonitis in particular responds to its use.

In pulmonary tuberculosis especially of the single focussed, localized, afebrile type, the judicious use of ultra-violet light is of considerable benefit, but we must bear in mind that general irradiation leads to deep seated visceral congestion and exercise great caution in all chest conditions. Here our guide must be a careful watch on the pulse and temperature.

In Rollier's sun clinics in Leysin that I had the pleasure of visiting, I noted that his patients received no special dieting or tonics; rather the reverse. They stated there *inter alia* that tuberculosis of the knee was of the most serious prognostic import and took longest to respond.

In surgical tuberculosis all the ordinary surgical measures must be adopted; abscesses should be evacuated, fibrous glands, chronic nodules, flaps of tuberculous peritonitic material removed and suppurating organs such as the kidneys, dealt with.

In Rollier's clinics immobilization is carefully and thoroughly worked out. Each patient, according to his needs, is treated by rest in bed, traction, hard pillows, special beds with surgical springs and webbing straps for the body and legs.

Diseases associated with endocrine deficiencies respond well to irradiation together with the appropriate glandular preparations.

During the course of syphilitic treatment the common depression and frequent accompanying anæmia is cured.

The delicate, fretful child, with no organic disease, with whom we are all so familiar, is benefited enormously. The first thing noted by the anxious mother is the improvement in the temperament of the child. "He is so much happier," she says, "so much less fretful." He is, for his health is better.

Chronic bronchitis, with asthmatic tendencies is cured in a large percentage of instances.

All chronic staphylococcal infections, for example blepharitis, postauricular eczema and the like, respond to general treatment.

In chronic otorrhœa without caries, in that common and distressing complaint chilblains we have a remedy of exceeding value.

In regional actinotherapy, we have another wide field of action. It is the local irradiation of that particular body zone of the skin that is in close relation through vascular and nervous channels with any given viscous.

By this method not only can painful visceral disease be treated, but also visceral disease not characterized by pain.

Irradiation of special regions and cavities, such as the tonsils, pharynx, nose and ears by special quartz applicators, assisted by specula of appropriate shape, is demonstrably of value.

As one can realize from a knowledge of its therapeutic actions, constitutionally, locally, regionally and fractionally, so large is the range of utility of ultra-violet light in the treatment of children's diseases that I can only hope to give a general outline in the scope of such a short paper as this.

The educational authorities at home are fully alive to its value in their crowded towns and their efforts to utilize it in their playing areas and class rooms is only bounded by the limit of their finances.

All through the larger cities are scattered these lighthouses in the darkness in the charge of experienced nurses working under medical supervision. After having seen them and talked to them and worked with them, I can realize in this favoured spot what the light means to infancy and childhood under less favoured conditions than ours.

At home, on the continent and in America, members of the profession are realizing more and more as they step over the ultra-violet threshold that this light has come to stay with us, that the fuller knowledge of its powers will mean in the years that are near incalculable benefits to the children of the world, for whom already it has conquered one of their direst enemies.

I have to acknowledge references from P. Hall, Rollier, Gauvain, Biancain, Pacini and others.

DR. A. JEFFREYS WOOD (Melbourne) stated that ultra-violet rays were used extensively in all clinics in England. He had been extremely satisfied with the results. Rickets for instance were rapidly cured. He had had good results in premature infants with lowered metabolism. The treatment had the effect of stirring up the metabolism.

DR. WILLIAMS (Dunedin) mentioned a case of coeliac disease which he had known to have been successfully treated by ultra-violet rays.

SECTION X.—NAVAL AND MILITARY MEDICINE AND SURGERY.

MEASURES FOR THE PROTECTION OF THE CIVIL POPULATION AGAINST GAS ATTACKS FROM THE AIR.

By A. P. LAWRENCE, M.B., B.S. (Melb.),
*Squadron-Leader, Director of Air Medical Services,
Royal Australian Air Force.*

THE contemplation of another war is unpleasant. The realization may be more so, hence this paper which has been prepared at the request, I believe, of Sir George Syme whom we have to thank for suggesting a very interesting subject.

The first questions we have to ask ourselves are: Will gas be used in the next war? If so, will it be used against the civil population and will it be used from the air?

Sir Hugh Trenchard recently remarked: "I would stop all flying, civil and military, if I could. It will do more harm than good to the human race."

However this may be, the possibilities of evil from the air are so real that they will repay a little thought and consideration.

Now, at the Washington Conference the nations agreed not to use gas in future wars. Germany, however, was not represented. In any case, international agreements have been broken in the past and may be broken in the future.

Then again, gas is regarded by Haldane and other writers as more humane than shell-fire and other methods of warfare, the main arguments being that war would be short and sharp, casualties not fatal and recovery in many cases perfect.

Now, how could gas be used against the civil population? What gas could be used? Mustard is the best war-winning gas we know and is familiar to all from its wide use in the last war. It is a synthetic product, not to be confused with the oil from mustard seed and rejoices in the name dichloroethyl sulphide. It has a double action. Not only can it kill by its action on the lungs when inhaled, but it also burns the skin. This skin action is delayed occasionally six hours after contact, a fact which rather enhances its value. Most people are familiar with the burns of mustard gas, the swollen, puffy eyes, loss of voice and broncho-pneumonia. Its physical attributes render it ideal for war. The liquid vaporizes slowly at ordinary temperatures, lying about for days in low places, while the vapour is heavy, hugging the ground and little affected by the wind.

Taking mustard as our example, how could it be delivered from aeroplanes? Gas bombs would be bad enough, but there is another possibility which requires investigation. Is it feasible to spray mustard gas from the air? If so, large quantities could be carried, the containers being big and light. There seems no doubt that if any enemy could get near enough to launch an attacking force of aeroplanes by night, gas could be sprayed over a city with deadly effect, paralysing its activity unless measures were taken to protect the population.

But you say to spray a large area such as a city with mustard gas would use a huge quantity of gas. Do such quantities exist? How is it manufactured? In this connexion there is a little book by Victor Lefèvre entitled: "The Riddle of the Rhine" in which he points out that the known and perhaps to us unknown poison gases of modern warfare are all very easily manufactured in the huge chemical works along the Rhine and its tributaries. War gases are often the intermediate products in the manufacture of aniline dyes. The peaceful dye industry becomes the warlike gas industry. Germany has fostered this large chemical plant for sixty years until to-day it is a chemical monopoly which constitutes a menace to the peace of the world.

Lefèvre's theme is that no country should have a monopoly in the production of war gas. The essence of defence is attack. Attack is impossible without the weapon.

Now to come to our subject. Measures for protecting the civil population should comprise:

1. The dissemination of knowledge concerning the effects of a gas attack and the precautionary measures;
2. The provision of an air-raid alarm;
3. The provision of shelter in which inhabitants of a city could obtain protection during and subsequent to an attack;

4. The organization of a service for clearing an area of gas;
5. The organization of a service for dealing with casualties and persons contaminated;
6. Military control of this organization.

The Dissemination of Knowledge.

Nothing could more effectively aid a gas attack than complete ignorance on the part of the populace of its mode of action and especially of its limitations.

If immediate panic were to result from a gas bombing raid, no protective organization could be of the slightest avail and the first essential is, therefore, that everyone should know what he is expected to do in the circumstances and that if he does it, he will be comparatively safe. The following knowledge should be in the possession of every civilian of an age rendering him or her capable of taking responsible action:

(i). That in a gas attack, it is dangerous to be out of doors, comparative safety lies in going indoors and closing the doors and windows and almost complete safety in making the room practically gas tight.

(ii). That an insidious and extremely probable form of gas attack consists in showering down, either in drops or in bombs, a poisonous liquid which evaporates slowly and continues to give off poisonous gas for days, until the liquid has either been washed away by water or destroyed by chemicals. Consequently, when a gas attack has started in his vicinity he must remain indoors, until the neighbourhood has been cleared up by the authorities and civilians can safely proceed with their normal vocations.

(iii). That both the liquid and the vapour may, if given the opportunity, damage him not only by poisoning him through breathing, but by action on his eyes and on the whole of his body, even through his clothes.

(iv). That the effects of gassing will possibly be delayed for some hours and that in consequence a person who is exposed to a source of contamination, may be affected sufficiently to become a casualty without knowing it.

(v). That a contaminated person can and probably will communicate contamination to other persons in a confined space or from his hands to any other parts of his body which he may touch.

(vi). That any person who has reason to think he is contaminated with gas, whether from bomb or spray, should change his clothes and have a bath as soon as possible.

The above ideas are broad generalizations dealing with the effects of and precautions against gas attack and probably will be of sufficient general interest to admit of their becoming widely known to the ordinary run of intelligent people.

Admittedly, it would be a great advantage if the public were already acquainted with the foregoing information before the outbreak of war, but there would be great difficulty in educating them along

these lines in time of peace. The only means by which information could be propagated directly would be by inspired articles in the press or by incorporating the information in educational courses in elementary hygiene. Efforts of this kind might be misconstrued and might arouse political feeling or international distrust, thus defeating the object in view. We have an example of this in the propaganda in favour of chemical warfare which was carried out in the United States of America in 1920 and 1921, which resulted in strong pressure being brought on the American Government to introduce clauses into the terms of the Washington Agreement to forbid its use. Instruction of the Citizen Forces and of certain public bodies and possibly voluntary aid societies in anti-gas defence would tend gradually to disseminate information throughout the country.

On the outbreak of war or when deemed necessary by the Government this information, together with concise instructions as to the action to be taken in the event of an air raid, could be promptly brought to the notice of the civilian population through the agency of the press or it might be possible to broadcast it by wireless. It is imperative that there should be no delay in spreading the information on the outbreak of war and for this reason the requisite notices and official posters must obviously be drafted in peace time and sufficient copies kept ready for immediate issue to the proper authorities.

More detailed information and instructions must be issued to the authorities upon whom the responsibility will rest for organizing and carrying out anti-gas schemes locally. In this case it would be too late to await the outbreak of war before issuing the information; it should be available long before there is any thought of war, so that plans may be developed in detail to suit local conditions and resources. The authorities to whom such detailed information might have to be communicated, include the following:

Public Authorities.

It is suggested that the organization of the necessary services to deal with the protection of the civil population against gas attack should be undertaken by such public bodies as the police, fire brigades, local government authorities and ambulance services which are well adapted to undertake definite duties in connexion with anti-gas organization, but it would be necessary for them to have training beforehand if they are to be relied upon in an emergency.

The Medical Profession.

In addition to instructions regarding the organization for dealing with gas casualties, concise information would have to be communicated to medical practitioners regarding the symptoms and treatment of the different forms of gas poisoning. A pamphlet on this subject is needed and a sufficient stock should be kept, so that a copy would be available to every medical man in the country on the outbreak of war.

Voluntary Aid Societies.

Valuable aid might be rendered by voluntary aid societies provided they had some acquaintance with the subject. Ambulance work is, I understand, part of the curriculum of these societies and it should not be a difficult matter to add sufficient information regarding gas casualties and anti-gas defence. Members of the voluntary aid societies would then be in a position to make house-to-house visits on the outbreak of war explaining the various precautions that must be taken and the reasons for obeying official instructions.

The functions and dispositions of these voluntary aid societies should be very carefully considered with a view to deciding what part each might play in the organization.

The Provision of an Air Raid Alarm.

The warning would have to be for all attacks of enemy aircraft, for it would be impossible to predict whether gas would or would not be used. This warning would have to be repeated all over the city that an attack is approaching. Given fifteen minutes before an attack, it would allow people time to reach their protected rooms or public shelters.

Shelter During and Subsequent to a Gas Attack.

"Gas masks for all" which on first thought suggests itself as a sound precautionary measure, must, however, be ruled out as impracticable.

The use of masks by untrained persons or by infants is not satisfactory.

People should go indoors and remain there. The sealing up of rooms to be approximately gas-tight is quite practicable. With doors and windows closed and packed the degree of permeability would be negligible. Chimneys should be blocked. Rooms should be selected in which fires are not likely to be burning. If a fire is in a room, it should be extinguished. Allowing twelve hours for clearing up the streets, a space of 8.5 cubic metres (three hundred cubic feet) per person should be sufficient. Food and sanitation should be provided for. The first floor of big buildings would afford the best protection. It would escape explosive bombs which would burst on contact in the upper stories. Cellars would be useless, as the gas would sink into them.

Services for Clearing Areas of Gas.

The detection of gassed areas and of the real extent of the contamination is a problem of great difficulty and could be done only by skilled personnel. The staff employed on this work would have to be trained in the detection and destruction of chemical warfare agents and would be equipped with masks and protective clothing.

Two main aspects of clearing an area of gas are (i) the removal of any gas that may have collected in the atmosphere and (ii) the destruction of toxic liquid on the ground.

The former would be removed by the lighting of fires and forced ventilation.

Certain toxic liquids may be destroyed by spraying with hypochlorite solution which destroys

mustard gas or "Lewisite," an American product which resembles mustard gas in its action.

Other poisonous gases are not destroyed by hypochlorite, but means may yet be devised for dealing with them.

General Scheme of Decontamination.

It is necessary to have trained personnel provided with anti-gas appliances, respirators and protective clothing, to decontaminate a city after a gas attack. This decontamination service could advantageously be undertaken by the municipal authorities and delegated by them to existing services having regular peace-time duties. As already mentioned trained chemical warfare personnel should be available to determine the nature and extent of the gassing and to supervise the decontamination. It must be remembered that an enemy may drop high explosive bombs or incendiary bombs at the same time as gas and that immediately after a raid a large part of the fire brigade may be expected to be fully occupied with fires.

A city may be divided into the following categories from the point of view of decontamination: (i) water surfaces, (ii) open spaces, for example gardens and parks, (iii) streets, (iv) houses, (v) back yards or gardens of houses and (vi) roof surfaces.

Water surfaces other than reservoirs for the supply of water to a town need no decontamination. Rivers and canals could be used as a means of distributing supplies, if necessary. The question of the action to be taken in the case of gas bombs dropping into reservoirs is one for investigation.

Open spaces, gardens, parks and similar areas not absolutely essential to the life of the community (that is to say, the every day needs of the people are not vitally affected if the use of these open spaces is prohibited) should be closed after a raid until pronounced free from contamination.

The best method to use for decontaminating a street would possibly depend on the nature of the materials used in its construction, for example, it may consist of concrete, tarred wood blocks, cobble stones or a macadam surface. The effect of mustard gas on each of these would have to be ascertained. Considerable benefit would, no doubt, be obtained by a thorough hosing down with water which would destroy some of the mustard gas by hydrolysis and would also wash a further amount down the drains where it would not be dangerous. The water would also fill up the bomb holes and so seal off any toxic liquid left in them, which could then be destroyed by an appropriate chemical. The hosing would have to include sides of houses and vehicles and in fact anything in the gassed area which was likely to be contaminated. Care would, of course, be necessary to prevent the mustard gas being splashed about by the hosing and so contaminating further areas or the people carrying out the operations.

A certain amount of mustard gas may, however, be absorbed in tarred wood or concrete or cement road surfaces and it may therefore prove necessary to follow the washing down by watering carts filled

with hypochlorite solutions which might be left on the contaminated roads for an hour or more; the roads could afterwards be hosed down a second time and might then be considered clear of contamination. Care would have to be taken to insure that toxic liquid had not collected in the various man-holes in the street, leading to the electric, gas or water mains. In cases of very heavy contamination, it might be necessary and in fact might be the only practicable course to close off the street or road and to evacuate all the inhabitants until it had been thoroughly cleansed.

Where houses have been penetrated by bombs containing mustard gas or a similar liquid, evacuation is the only feasible course. Such evacuation may involve the houses on either side if the contamination has been very heavy. Decontamination is, however, necessary as a preliminary measure to repair work and this might be carried out by the fire brigade. The difficulties of insuring complete destruction or removal of the gas are very great and all demolition and repair work would have to be done cautiously for some time.

Care would also have to be taken in the cases of houses in which the windows may have been broken by bombs in the street. All rooms into which gas might have penetrated in this way should have the doors and windows opened to give good ventilation and should not be occupied for several days or until pronounced safe by a competent authority.

Back yards is meant to apply to yards and gardens of houses, the use of which is essential to the every day activities of the household. If these are contaminated, it will be necessary to evacuate the house, unless it is possible to carry out the decontamination at once.

It would probably be best to leave roof surfaces alone and to allow the rain and sun to destroy the mustard gas which they undoubtedly do in time. If it should prove necessary to decontaminate them, it could best be done by the fire brigade using fire escapes and hosing them down well.

The "All Clear" Signal.

It should be arranged to sound the "all clear" signal locally in separate suburbs; some areas would be cleared before others. Ambulance services would deal with all casualties, either gas or high explosive and with the decontamination of gassed people.

The inhabitants should also be warned against the consumption of any food or drink likely to have been exposed to the gas.

Treatment and Decontaminating Centres.

Hospital treatment would have to be provided for seriously affected persons, while those mildly affected could be treated in their own homes.

Decontamination centres would have to be established and in this connexion it is suggested that the public baths would be highly suitable. Bales of simple clothing for both sexes would have to be provided.

Organization of Protective Services.

Protective measures would involve a number of bodies and it is therefore necessary to consider how these should be coordinated and controlled in war, as the efficiency of the arrangements proposed would depend to a very great extent on proper direction. The following bodies would be involved: (i) The central directing authority, (ii) the police, (iii) the fire brigade, (iv) municipal street cleaning and other services, (v) ambulance services, (vi) personnel for treatment and decontamination centres.

The Central Directing Authority.

The central directing authority should be military. The officer-in-command must have full information and must be in touch with the police. Telephone exchanges would, therefore, have to be protected.

Under this central authority there must be a body of military personnel of officer rank, trained in the detection and destruction of poison gases, who can be at once sent to the gassed areas to direct operations. These officers would be authorized to control all the decontamination services within their allotted areas and to take such action as they consider essential, after communication where necessary with the central authority, for the proper clearing-up of their districts. Thus, they should have power to order the evacuation of houses or the closing of streets, if such were essential in the interests of public safety. This staff would require to be trained in peace time.

The Police.

The police should form a very important part of the protective services. They, like the decontamination services, should be supplied with gas masks and protective clothing. Their duty would be to compel all persons to take refuge in a gas raid and to keep them indoors until the "all clear" signal is given; to direct people to public gas shelters and after a raid to decontamination and first-aid stations; to inform the central authority of the position and extent of a raid and of the progress of decontamination; to stop traffic on warning of a raid and arrange for it to be parked conveniently so as to have the main roads clear for washing down.

The Fire Brigade.

The main function of the fire brigade would be to deal with fires, but it would no doubt be available after a raid to assist in special decontamination work, such as would be required for roofs and high

Central Directing Authority.

Staff of Chemical Warfare Personnel.

Police.

Fire Brigade.

Municipal Street
Cleansing Service.

Ambulance Services.

Personnel for First Aid
and Decontamination
Centres.

houses and for houses wholly or partially demolished by gas bombs.

The Municipal Services.

The municipal services would be required for decontamination work and would include street cleaners, park rangers and so forth. In the case of areas which may have to be evacuated and barricaded off, provision would have to be made for the erection of the necessary barriers.

The Ambulance Services.

The ambulance services would be required for the removal of casualties and would have to be greatly augmented.

First-Aid Personnel.

The personnel for first-aid and decontamination services could probably be manned by suitable voluntary workers and the only permanent staff would be in the nature of caretakers to insure that the buildings and stores were maintained ready for use at a moment's notice.

The foregoing is briefly an outline of the duties of the various bodies likely to be concerned in any scheme of anti-gas protection of the population, subject no doubt to many modifications to suit local conditions.

Organization and Training in Peace of the Protective Services.

Although the organization would in war time be commanded by the military, it is suggested that the responsibility for organizing and training the different constituent bodies in peace should be undertaken by the local governing authorities in conjunction with the police and fire brigades. It would be necessary that these authorities should have full information as to the nature of the gas attack which may be expected, and of the policy which has been decided upon in regard to the protection against the same, and to request them to communicate sufficient information to their employees to enable them to understand and assist intelligently in the organization to be created. The knowledge thus disseminated would help in the general education, besides forming the ground work of the protective organization. Further, it is considered that all the services mentioned which form a part of the organization, would require certain special instruction in the duties during peace. They would all have to be equipped with respirators and special clothing to protect the body against substances like mustard gas. As men must be fitted with respirators and trained in their use to enable them to carry out their duties efficiently when protected against gas, it is essential that the necessary protective devices should be available in peace time and the men given sufficient practice in wearing them while performing duties similar to those which they would have to carry out during a gas raid. It would be folly to wait until the outbreak of hostilities before protective appliances were obtained, as their manufacture would not be possible in time. Further, it would be necessary to give the services responsible for decontamination or at any rate a number of

those in charge instruction in carrying out the methods recommended. If gas may be used on the outbreak of war, then such training must be given in peace.

It may, also, be necessary to consider special cases in which the continuance of essential duties during a raid is imperative, for example, in the case of railways, factories or dockyards, dealing with essential supplies to the fighting forces, the delivery of which must not be interrupted.

Summary.

An organization controlled by a central military authority and involving the police, fire brigades, street cleaning and other municipal services, the ambulance services and voluntary first aid societies is suggested for dealing with the protective measures necessary in the case of gas attacks from the air.

Acknowledgments.

This article, as mentioned in the beginning, has been prepared at the request of Sir George Syme and for it I claim little or no originality. For assistance given in its preparation, I desire to express my thanks to Squadron-Leader R. S. Drummond, D.S.O., O.B.E., M.C., of the Royal Air Force and to members of Headquarters Staff of the Royal Australian Air Force and to the various authors and research authorities my acknowledgment of having used much valuable information culled from their works.

Staff Ride.

THE SECTION OF NAVAL AND MILITARY MEDICINE AND SURGERY held a medical tactical exercise on February 5, 1927.

DIRECTING STAFF.

- Colonel R. Tracy-Ingilis, C.B.E., M.B., Ch.B., V.D.,
- Colonel E. J. O'Neill, C.M.G., D.S.O., M.D., V.D., N.Z.M.C.,
- Lieutenant-Colonel Hardie Neil, D.S.O., V.D., M.R.C.S. (England), L.R.C.P. (London), Assistant Director of Medical Services, Northern Command.
- Lieutenant Colonel N. W. B. B. Thoms, D.S.O., M.C., N.Z.S.C., G.S.O.1 Southern Command.
- Major G. A. Gibbs, N.Z.A.M.C., Staff Officer and Quartermaster Medical Services.

Associated with the directing staff were:

- Major-General G. W. Barber, C.B., C.M.G., D.S.O., V.D., M.R.C.S. (England), L.R.C.P. (London), Director-General of Medical Services, Commonwealth Military Forces.
- Lieutenant-Colonel R. B. Smythe, D.S.O., N.Z.S.C., Adjutant-General, New Zealand Forces.

GENERAL SCHEME.

The exercise is based upon the assumption that those taking part belong to the Brownland Army, Brownland being a State five days' sail from New Zealand and at war with the British Empire; having command of the sea, it decides to invade New Zealand.

It may be assumed that the characteristics of personnel and the organization and equipment are identical on both sides. War establishments (small war) will be used.

Brownland, knowing that the troops of the South Island are mobilizing at Christchurch, makes the necessary

arrangements for effecting a surprise landing at Port Chalmers and Dunedin, which places are known to be undefended.

The enemy troops in the South Island are estimated at one brigade mounted rifles, two brigades of infantry with usual ancillary troops and well equipped with modern arms, including gas. The inhabitants are known to possess characteristics which made each civilian a potential guerilla.

The plan of campaign is to establish a base at Dunedin and advance thence on Christchurch. It is realized that, even given an unopposed landing, serious opposition is probable throughout all stages of the campaign.

The force to be employed consists of (a) general headquarters, (b) one army corps of corps troops and two divisions, (c) lines of communication troops.

Medical Appreciation of the Situation by Director of Medical Services of the Force.

Reference: Dunedin Topographical Map.

1. Information from Headquarters.

On February 3, 1927, the estimation of strength of opposing force was:

- Army corps of two divisions of 17,380 men each, one cavalry brigade of 2,598 and corps troops 14,188: Total strength 51,556.
- Present position of our force: First Corps Headquarters, Dunedin, First Division at Dunedin, Second Division at Port Chalmers.
- Lines of communication: narrow gauge railway running close to the coast to Christchurch; roads: one main road to Christchurch.
- Equipment: Our force, modern armament, air service, armoured cars.

2. Medical Arrangements (Broad Outline).

The medical units are mobilized on the British war establishment's scale. No auxiliary services are available. The hospital accommodation will be in buildings if possible, augmented by tent accommodation.

3. Topographical Influence on the Campaign.

(a) The country is hilly from Dunedin to Oamaru. There is a flat plain from Oamaru to Christchurch. The railway is a single narrow gauge from Dunedin to Christchurch. They provide good train transport for the evacuation of casualties. The roads include trunk road good for mounted troop transport with steep gradients and provide good evacuation lines for mounted troop transport.

(b) Villages south of Hawkesbury are small and of little use to medical services. There is a mental hospital at Seacliff.

(c) The climate at midsummer is good and dry in general. Clothing: The present issue (service dress) is suitable. A blanket is necessary at night.

(d) Supplies are ample. Water supply: All water must be chlorinated and carried in unit water carts.

(e) Prevalent diseases: None, but those common to civil life. Influenza is likely to develop and possibly cerebrospinal meningitis. All troops have been inoculated against typhoid and paratyphoid A and B.

The country is free from small-pox, scabies and lice; the latter must be provided against by providing baths and disinfection centres and clean clothing for troops. Venereal disease must be guarded against by providing anti-venereal outfits, lectures to troops and recreation and games.

Wounds.

4. The classes of wounds likely are bullet, shell and high explosive wounds. Gas will probably be used by the enemy. Tetanus and gas gangrene will not, it is hoped, be very prevalent. Anti-gas measures must be prepared.

5. Estimation of Casualties.

(a) Exclusive of line of communication units the force is composed of two divisions, one cavalry regiment and corps troops. The officers and other ranks of the two divisions, total 34,770, one cavalry regiment, officers and

other ranks, total 687 and corps troops 14,188, making a total of 49,645.

For the sake of convenience in calculation this number (49,645) will be taken as 50,000 in estimating the probable number of admissions to hospital for wounds.

The campaign which is imminent, will be one of rapid movement, at any rate in the early stages; and the fighting will be that incidental to open warfare.

(b) Battle casualties: Take 10% of three-fifths of total force of fighting troops which is estimated at 50,000 men, = 3,000; deduct 20% for killed and missing = 2,400, deduct 10% who do not require evacuation beyond divisional field ambulance = 2,160.

(c) Sick wastage: The usual estimate is that out of every thousand men, three men will daily require treatment in hospital. This means that 150 men will be admitted to hospital daily from the 50,000 men forming the divisional units and corps troops. It is estimated that 40% will be discharged from hospital in seven days and 50% will be discharged from hospital in twenty-one days.

The bed accommodation necessary for sick is 2,350.

(d) Necessary hospital accommodation required: For wounded 2,160, for sick 2,350, a reserve of 25% 1,128; total beds 5,638.

It is considered necessary to mobilize hospital accommodation for about 10% of the force, so it will be seen that there is ample hospital accommodation providing there are no gas attacks or epidemics.

(e) Evacuation presents no special difficulties, but an additional hospital ship should be provided at once.

6. The campaign will in its early stages at least be one of rapid movement and in consequence no sick and wounded requiring more treatment than "medicine and duty" should be retained with units. The field ambulances and casualty clearing station must not retain men who are fit for full duty a single hour more than is necessary. The line of communication will not be long and no difficulty should occur in returning men, discharged as fit for duty, from hospitals to their units.

7. It is understood that regimental medical establishments, field ambulances and hygiene sections will be mobilized for service with the divisions in accordance with the existing war establishments and that the same applies with regard to the regimental medical establishments of such units of corps troops as are in possession of them.

8. It is recommended that each corps should include as part of its corps troops the following non-divisional medical units: One field ambulance, one hygiene company, one casualty clearing station, one motor ambulance convoy, one advanced depot, medical stores, one mobile bacteriological laboratory, one mobile hygiene laboratory.

With regard to line of communication medical units, the provision of the following is strongly recommended as a minimum which will almost certainly require to be augmented in the event of the war being prolonged beyond three months.

General hospitals (1,200 beds)	4
General hospitals (600 beds)	2
Hospital for venereal diseases (300 beds) ..	1
Convalescent depot (1,200 men)	1
Base depot medical stores	1
Hygiene section	1
Ambulance trains	2

These units will, if mobilized, furnish 6,300 beds, of which number 600 will be for officers. With the convalescent depot for 2,000 men it will be seen that there is ample accommodation for the sick and wounded at present.

It is recommended that the four general hospitals (each 1,200 beds) and the venereal hospitals be opened as soon as they have disembarked.

Nos. 1 and 2 general hospitals will be in the Dunedin area.

Nos. 3 and 4 and venereal hospitals will be in the Port Chalmers area.

With regard to general hospitals (each of 500 beds) it is recommended that they be held in reserve and remain mobilized ready to move at short notice if their services are required up the line.

The convalescent depot should open up once in the Dunedin area.

The base depôt medical stores should open up at Port Chalmers.

One hygiene company will be located by sections at Mount Cargill School (L.49) Blueskin area (G.45) and Merchiston area (G.35) after first divisional headquarters have been established.

9. Medical Equipment.

The medical equipment of all medical units and regimental medical establishments of the Army up to scale and sufficient stocks are held in medical stores.

The existing supply of antitetanic serum is, however, not likely to meet requirements for more than the first two months of the war and arrangements have been made to obtain further supplies from abroad. It must be remem-

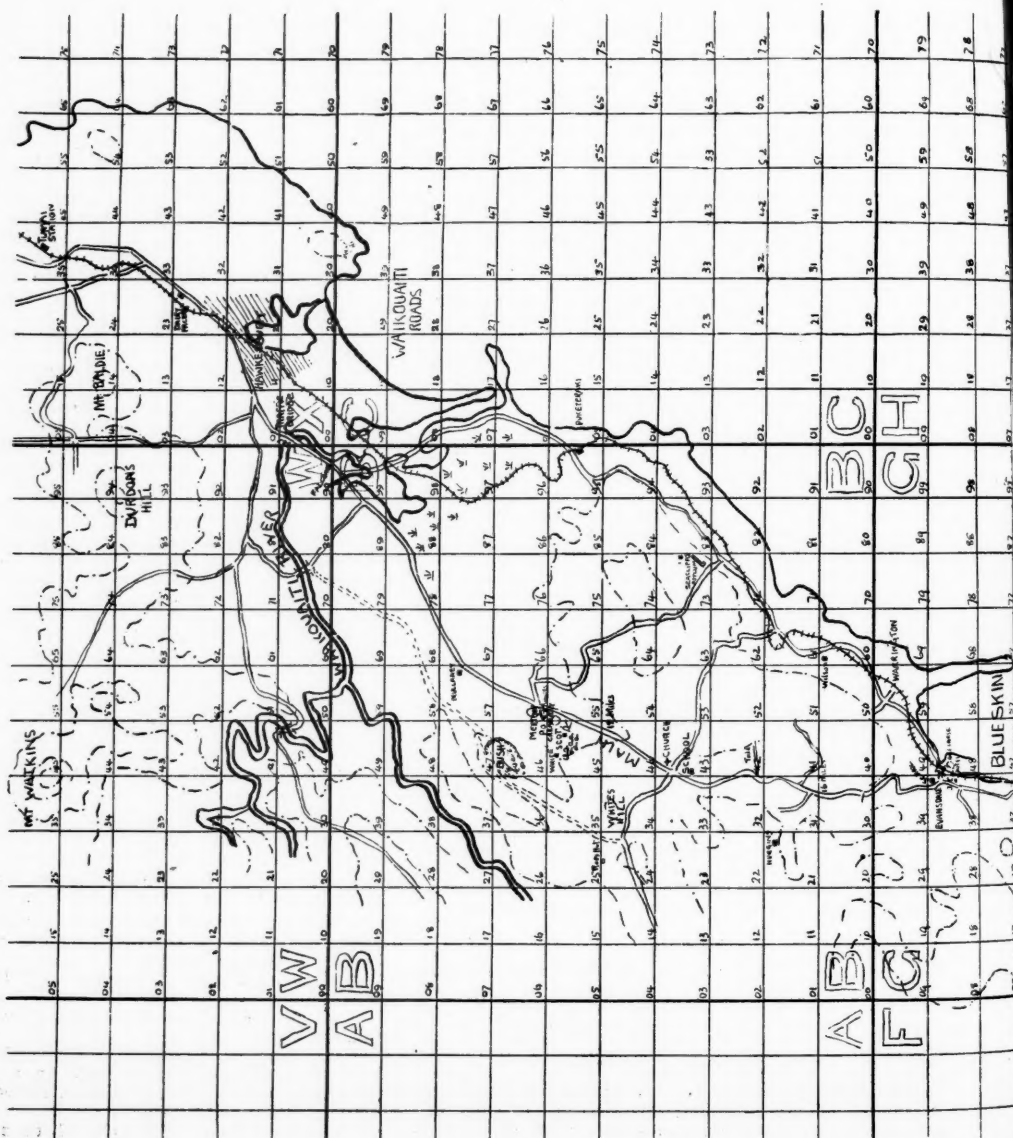
bered that, as the fighting will occur for the most part over highly manured country, every wounded man must be given a prophylactic dose of antitetanic serum.

10. Ordnance Equipment.

The hospital clothing provided for field ambulance casualty clearing stations in the scale given in the Army Form G.1098 for these units is not sufficient. Each field ambulance has only 150 suits of pyjamas and each casualty clearing station 300.

If mustard gas is made use of by the enemy, it will be absolutely necessary for each suffering from its effects to be completely undressed, washed in soap and water and clothed in clean pyjamas before the patient can be evacuated to the lines of communication. This should be done

ROUGH SKETCH TO ILLUSTRATE THE TACTICAL EXERCISE HELD BY THE OFFICERS OF THE AUSTRALIAN INFANTRY CORPS IN THE VICINITY OF PORT CHALMERS.



in the main dressing station of divisions wherever possible or carried out in the casualty clearing station.

In consequence the number of pyjamas provided for these above-mentioned units, while ample for the use of ordinary casualties, will not suffice if mustard gas is used by the enemy.

It is strongly recommended that the ordnance be asked to provide pyjamas for these units on the following scale:

Field ambulances	500
Casualty clearing station	2,000

Experience in the last war has proved that each corps must be in possession of an ample reserve of stretchers and blankets. Each corps should have a reserve of 500 stretchers and 1,000 blankets.

11. Laundries, delousing centres: The provision of laundries and delousing centres is now the duty of Q Branch of the Staff.

NARRATIVE.

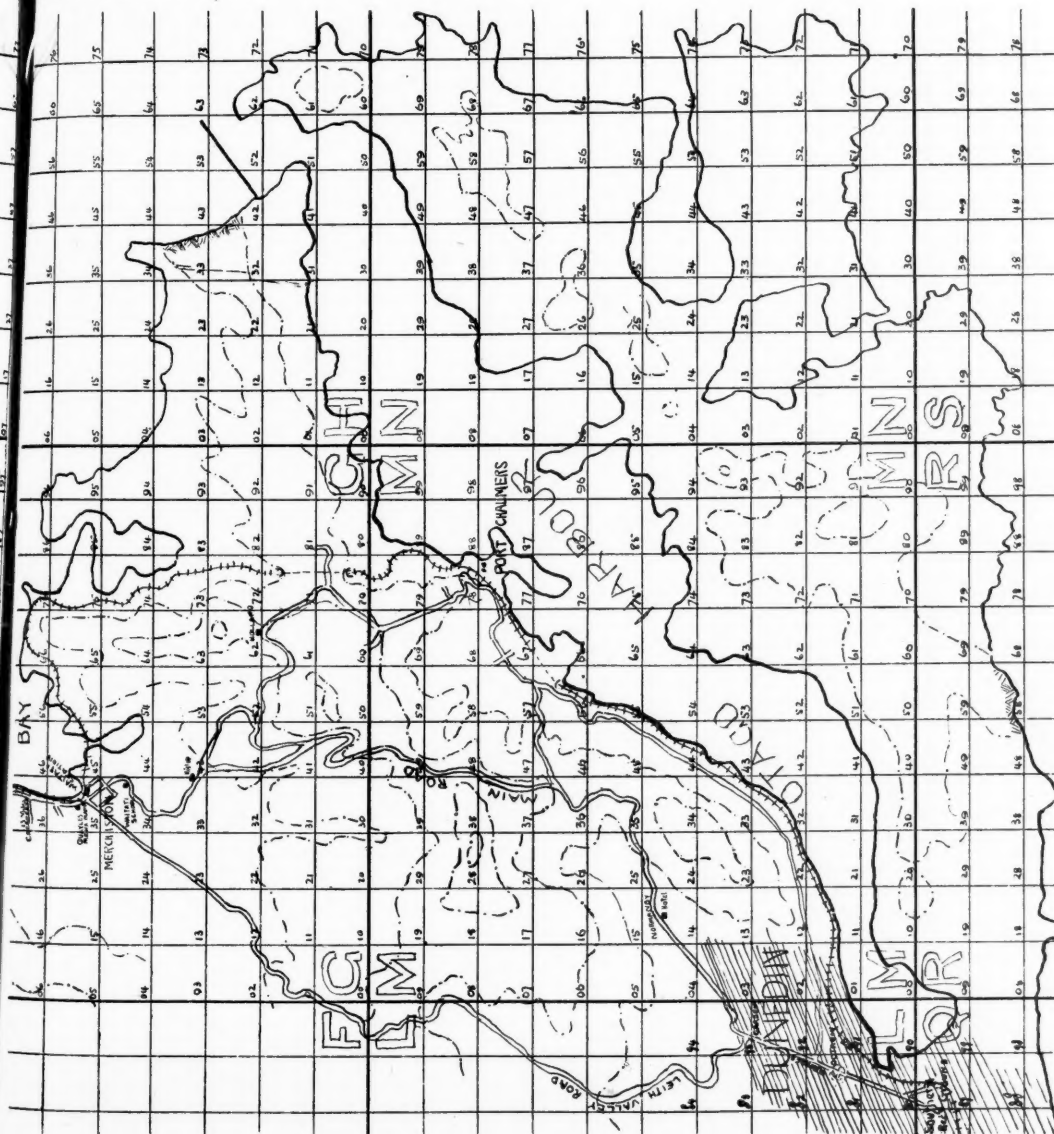
1. Arrangements are made to land troops as per attached schedule which can be roughly summarized as follows:

- (a) Force headquarters: Port Chalmers
- (b) First Division: Port Chalmers and Dunedin
- (c) Corps of line of communication troops at Dunedin
- (d) Second Division, Dunedin—February 4 and 5, 1927.

February 3 and 4, 1927

2. By the end of February 4 everything has gone according to programme and troops are disposed as under:

THE OFFICE OF THE AUSTRALIAN ARMY MEDICAL CORPS AND THE NEW ZEALAND MEDICAL VICINITY OF DUNEDIN ON FEBRUARY 5, 1927.



(i) Blueskin Bay area: (a) First brigade [with first battalion on outpost from Wilson's (B.60) to Huggin's (B.21)]; (b) first brigade field artillery; (c) first field company; (d) first field ambulance.

(ii) Port Chalmers area: Force headquarters, headquarters first Division, second infantry brigade, field park company, second field company, second field ambulance, Division hygiene section.

(iii) Dunedin area: Remainder of Division. All corps and lines of communication troops.

3. Normal rolling stock is available on the railways and is under control of the Brownland Railway Operating Company.

4. At 2245 hours on February 4 the general officer commanding the first Division receives notification that the enemy are moving south by rail and will probably detrain at Hawkesbury with a view of attacking the Brownland Expeditionary Force.

The first Division is ordered to advance on February 5 and deny the crossings of the Waikouaiti River to the enemy.

The general officer commanding first Division decides to use all the troops now at Blueskin Bay area as advanced guard and to bring the second brigade to Merchiston by lorry thence forward by march route and afterwards bring the third brigade on by lorry, keeping it in reserve on its lorries.

A casualty clearing station has been established at Merchiston (G.35).

Problem 1.

(To be solved at Merchiston.)

As Assistant Director of Medical Services of the first Division what recommendation do you make with regard to the movement and use of the medical units of the Division on February 5?

Explain through what channel the orders get to these units.

Solution to Problem No. 1.

The Assistant Director of Medical Services would ascertain from the general staff the scope of the operations proposed on February 5. He estimates the number of casualties and decides if bearers and material at his disposal will suffice to collect the wounded. Should they not be sufficient, he would apply to Divisional staff for men from units in reserve.

The Assistant Director of Medical Services should recommend through the Assistant Quartermaster-General that for the purpose of the march a field ambulance should be attached to the brigade, that one company should march behind the vanguard and that the remainder of the field ambulance, less its motor transport, march in rear of the main guard. In the event of the advanced guard meeting with resistance and being forced to deploy to overcome it, the officer commanding the company field ambulance will be in a position to select and open an advanced dressing station at the earliest possible moment. These arrangements would be published in Divisional orders. A copy will be sent urgently to each officer commanding field ambulance, a motor cyclist from the field ambulance in reserve being detailed for duty at the office of the Assistant Director of Medical Services.

The Divisional Hygiene Section is not required when a Division is on the march and contact with the enemy is possible. The duties peculiar to it cannot be carried out under such circumstances. The Assistant Director of Medical Services should recommend that the sanitary section remain at the base until the Divisional Headquarters move forward.

In the event of the Divisional staff approving of these recommendations, the Assistant Director of Medical Services should send orders to the field ambulances to march as follows, a field ambulance to each brigade.

It is impossible for the motor transport of the field ambulances to march with their units, their engines

cannot stand the low rate of speed. The motor transport of a field ambulance is as follows:

Motor lorry, 3 ton	1
Motor ambulance cars, light	6
Motor ambulance cars, heavy	2

The Assistant Director of Medical Services should recommend that the motor transport of the field ambulance should by day march under the orders of an officer detailed by the officer commanding the No. 1 Field Ambulance. This convoy should march in rear of the column, but in view of the fact that its services may be required at any time, it should be given by the staff precedence over all other mechanical transport. It should advance by "bounds," that is after the rearmost unit of the column has marched and two hours have elapsed; it should go forward, get into touch with the rear of the column and again wait for two hours before making a second bound. When in motion it should move with wide distance between the vehicles and when halted the vehicles should not be concentrated, but should be extended and concealed from hostile aircraft. At the end of the march, the motors should proceed to join the headquarters of their unit for the night and are the next day under orders of the Assistant Director of Medical Services to assemble at a place and time given by him.

NARRATIVE (continued).

5. The advanced guard order on the advice of the officer commanding the First Field Ambulance allots A Company First Field Ambulance to march with the vanguard and the remainder of the First Field Ambulance in rear of the brigade (main guard).

At 0530 hours the vanguard with A Company First Field Ambulance in rear arrives at cross roads (B.43).

The remainder of the field ambulance in rear of the advanced guard is at thirteen miles stone.

6. You command A Company First Field Ambulance. At 0531 the vanguard commander (officer commanding first battalion) tells you that the advanced guard mounted troops have been driven back from the Waikouaiti River to vicinity of Merton post office (B.56) and that he is going to attack through White's (B.45) on to crest of hill in bush (B.46). His regimental aid post will be in Scott's Farm (B.45).

7. At this minute (0531 hours) ten wounded men are brought to you.

Problem 2.

(To be solved at cross roads (B.43)).

As Commander of "A" Company First Field Ambulance, state your action with regard to the situation disclosed in paragraphs (6) and (7).

Solution of Problem No. 2.

(i) The wounded should be accommodated in the nearest house on the main road, that is the church (B.43) with necessary medical corps personnel and equipment to look after them. An advanced dressing station will be established in the school (B.43). When the advanced dressing station is established, he will transfer the ten patients to it. He will send a message to the officer commanding No. 1 Field Ambulance that he has established an advanced dressing station, giving map reference, the number of patients sitting, lying and walking and asking for transport to evacuate the casualties.

(ii) He will detail a stretcher squad under a non-commissioned officer to proceed at once to the regimental aid post in Scott's Farm (B.45).

(iii) He will detail a light ambulance to go forward and endeavour to get in touch with mounted rifles regimental aid post.

NARRATIVE (continued).

8. At 0545 the Assistant Director of Medical Services, who is at Merchiston (G.35) received a message from the First Field Ambulance that "A" Company First Field Ambulance has established an advanced dressing station at the school (B.43). At 0630 hours he knows from messages received that this advanced dressing station is

likely to be dealing with at least 150 casualties. He knows that his medical units are at this time disposed as follows:

First Field Ambulance: (a) "A" Company formed advanced dressing station at the school (B.43), (b) remainder of field ambulance in column of route at Evansdale (G.38), motor ambulances at school (G.38).

Second Field Ambulance: Not yet left Port Chalmers and cannot be at Evansdale before 1000 hours. Motor ambulances 0800 hours.

Third Field Ambulance: In Dunedin and not available at Evansdale until 1330 hours.

Problem 3.

(To be solved at Evansdale.)

It is 0630 hours and you are Assistant Director of Medical Services and have the knowledge indicated in paragraph 8.

What orders do you give with regard to the evacuation of wounded from the action described?

Solution to Problem No. 3.

The Assistant Director of Medical Services would issue instructions to officer commanding No. 1 Field Ambulance to establish a main dressing station at Evansdale (G.38) with his headquarters.

He will issue instructions for the cars of No. 1 Field Ambulance to evacuate the casualties from the advanced dressing station to the main dressing station.

He will notify the Deputy Director of Medical Services of the first corps that a main dressing station has been established giving map reference.

He will also notify Divisional Headquarters that the advanced dressing station and the main dressing station have been established giving map reference and they will notify all concerned that these medical units have been established.

NARRATIVE (continued).

9. You are officer commanding the First Field Ambulance and the orders you received from the Assistant Director of Medical Services at 0635 after the advanced dressing station had been established at school (B.43) were to the effect that you had to form a main dressing station in vicinity of Evansdale (G.38).

Problem 4.

(To be solved at Evansdale.)

As officer commanding the First Field Ambulance where and how would you establish the main dressing station. Explain the routine.

Solution to Problem No. 4.

The main dressing station should be well back out of the congested area near a good water supply and near a good traffic circuit to an advanced dressing station and a casualty clearing station.

There should be a good road for motor transport into the main dressing station, also a way in and a way out.

The station should be organized with good accommodation for the following, also, if possible, large enough to establish a casualty clearing station in its place when it moves forward.

- (i) A receiving section for patients on arrival.
- (ii) A recording section.
- (iii) A dressing section, including an antitetanic serum area.
- (iv) A section for walking wounded.
- (v) A gas section.
- (vi) Lying down accommodation for patients awaiting evacuation to casualty clearing station.
- (vii) A mortuary.
- (viii) A cookhouse for patients.
- (ix) Living accommodation for personnel: (a) officers, (b) non-commissioned officers and men, (c) army service corps personnel.
- (x) Cookhouse for personnel.
- (xi) Ablution stand for (a) patients, (b) personnel.
- (xii) Stabling for horses.
- (xiii) Park for motor transport.
- (xiv) Area for equipment and bombs.

NARRATIVE (continued).

10. The vanguard attack fails and the advanced guard commander launches an attack at 0730 hour with two battalions, one from White's Hill (B.34) on to bush (B.4470) and the other from hut (B.2549) on to hill (B.37). The mounted regiment to be relieved by elements of the fourth battalion which will hold two companies in reserve in square (B.64). The mounted regiment assembling at White's Hill.

Problem 5.

(To be solved at White's Hill.)

As officer commanding the First Field Ambulance, what arrangements would you make for the evacuation of casualties from this attack?

Solution to Problem No. 5.

Instructions would be issued for "B" Company to establish an advanced dressing station just off main road at White's Hill (B.34). Two motor ambulance cars will be detailed to evacuate the casualties to the main dressing station at Evansdale. A non-commissioned officer and one squad will be attached to the medical officer of each battalion moving forward to the attack.

NARRATIVE (continued).

11. The advanced guard has not made much progress and the divisional commander decides that it is impracticable to advance further towards the traffic bridge and orders the Second Brigade to make a flank attack through the very difficult country. (Squads B.26-27-28-38-49-W.40-50-61). The forward battalion to cross the river at 1200 hours.

The First Field Ambulance is all employed.

The Second Field Ambulance is due to debus at Merchiston at 0840 when its horse-drawn transport will join it. Its motor ambulances have been at Evansdale school since 0750 hours.

The Third Field Ambulance will leave Dunedin in lorries at 1025. Its horse-drawn transport will be at Merchiston at noon. Its motor ambulances are at Evansdale school at 0830 hours.

As Assistant Director of Medical Services of the First Division you appreciate the fact that it will be impossible to take the transport of any field ambulance over the very broken country through which the Second Brigade is to advance.

Problem 6.

(To be solved at White's Hill (B.34).)

As Assistant Director of Medical Services of the First Division, make arrangements for the evacuation of the wounded of Second Brigade and give any other instructions necessary for the general evacuation of wounded.

Solution to Problem No. 6.

The officer commanding No. 2 Field Ambulance would be instructed to detail "A" and "B" Companies to accompany the Second Brigade in their flanking movement, manhandling the stretchers and necessary equipment. If he has not sufficient bearers to do this, he would make application to the brigade major for extra men. He would be instructed that, owing to the difficulty of bringing stretcher cases up through the hills, he should form a collecting post across the river in B.2576. The wounded would have to remain at this post until the troops had advanced into Hawkesbury to enable transport to be brought round to the collecting post. The light and heavy motor ambulances of the No. 2 Field Ambulance should be instructed to part at schoolhouse in B.43.

For the purpose of instruction it was decided not to pool the bearers and cars of the Division, but to work the ambulances as units attached to their respective brigades with the exception that only one main dressing station was established.

Problem 7.

(To be solved at White's Hill (B.34).)

Information comes through at 1500 hours from White's Hill that very few cases are coming through, although

the Second Brigade reports that at least 120 cases are lying out at B.49 at a regimental aid post under cover of a bank. Heavy sniping is being carried out by the enemy who are shelling with accuracy all possible tracks. It is stated that there are no ambulance bearers at the regimental aid post. The general officer commanding wishes an explanation in regard to the situation from the Assistant Director of Medical Services and the latter is asked to explain in writing the probable causes and how he proposes to remedy it. The officer commanding the First Battalion, Second Brigade, has been reported as seriously wounded. Has the Assistant Director of Medical Services any information as to his location and condition?

Solution to Problem No. 7.

It would appear that no stretcher squads were definitely detailed to be attached to the regimental aid post of the Second Brigade battalions at 1200 hours when they were timed to move off. In subsequently attempting to find the battalions the stretcher squads were diverted by the enemy activities and eventually lost all touch. A guide has, however, been found and is taking a stretcher squad to the regimental aid post in B.4093. The squads have been instructed to take all cases there. An urgent message has been sent back that the officer commanding First Battalion, Second Brigade, has been located, he has been dressed, his condition is good and at present is in the collecting post.

This problem furnishes a good example of a situation which will always arise where stretcher squads under a non-commissioned officer or senior soldier have not been detailed to the medical officer of each battalion before the brigade advances to the attack. When an officer commanding a battalion or officer of higher rank is admitted to a field ambulance, an urgent message must be sent to the division through the Assistant Director of Medical Services.

NARRATIVE (continued).

12. At 1400 hours the enemy is weakening his hold on the Merton position and the First and Second Brigades are both advancing and by 1500 hours the enemy has been driven across the Waikouaiti River at Traffic Bridge (W.90) and the Second Brigade is doing well in the vicinity of Durdon's Hill.

The Third Brigade is brought forward in 'buses to Merton Post Office (B.56) and ordered to leap-frog through the First Brigade and drive the enemy out of Hawkesbury.

At 1500 hours the medical situation is as follows:

(a) The main dressing station which was established by headquarters of the First Field Ambulance at Evansdale at 0645 has dealt with 400 cases (of which 100 were gas casualties) and a steady stream is still arriving.

(b) The advanced dressing station (B.43) established at 0545 hours by "A" Company of the First Field Ambulance has dealt with 200 cases and very few are now coming in.

(c) The advanced dressing station at White's Hill (B.34) established at 0745 by the "B" Company of the First Field Ambulance has dealt with 120 cases and a steady flow is arriving.

(d) The collecting post with the Second Brigade which was established at B.4093 at 1500 hours by the "B" Company of the Second Field Ambulance has dealt with 100 cases and a steady stream is arriving.

Owing to difficulty of carry this advanced dressing station cannot be cleared.

(e) The personnel of the Third Field Ambulance is in 'buses with the Third Brigade, but its headquarters transport cannot arrive at Merton Post Office before 1700 hours.

The motor ambulances of the Third Field Ambulance are at Evansdale School.

Problem 8.

(To be solved at 19 Mile Stone.)

At 1600 hours a number of wounded are arriving at Merton Post Office. As officer commanding No. 3 Field Ambulance you are ordered to establish an advanced dressing station at White's Farm (B.56).

State what action you would take.

Solution to Problem No. 8.

The officer commanding No. 3 Field Ambulance would order the officer in command of the "A" Company of the Third Field Ambulance to establish an advanced dressing station and to requisition on the inhabitants for the necessary bedding, suitable tables *et cetera* for equipping the advanced dressing station; pending the arrival of the equipment he would also send a request to the advanced dressing station at School (B.43) for instruments, dressings and medical comforts.

A message will be sent to the Assistant Director of Medical Services telling him that the advanced dressing station has been established and the wounded are ready for removal.

NARRATIVE (continued).

13. At 1800 hours the Second and Third Brigades have driven the enemy back and have consolidated a line from Tumai to Durdon's Hill.

At 2000 hours the Second Brigade is withdrawn to station (X.35), the Third Brigade having taken over its portion of the front.

The situation now is that the Third Brigade is holding line with first mounted regiment west of Durdon's Hill and the First and Second Brigades in Hawkesbury.

Problem 9.

(To be solved at Hawkesbury.)

As Assistant Director of Medical Services of the First Division, what arrangements would you make for the evacuation of the sick and wounded from the Division?

Solution to Problem No. 9.

Instructions would be issued to the officer commanding the No. 3 Field Ambulance to establish a main dressing station with his headquarters at Falconer's Farm (B.99). He will also establish an advanced dressing station at the Dairy Factory, Hawkesbury (X.22), with one company of his unit. He will arrange to clear the sick and wounded from the advanced regimental posts to the advanced dressing station at regular intervals and from the advanced dressing station to the main dressing station.

Issue instructions for No. 1 and No. 2 Field Ambulances to close the advanced dressing station and main dressing station and to be billeted in their brigade area. Officers commanding No. 1 and 2 Field Ambulances would be instructed to send all their motor ambulances by the road running north-west and west from Falconer's Farm, passed Arbell's Farm (W.70) and Buckland's Crossing (W.40) to the collecting post B.4093 and evacuate the wounded to the main dressing station at Falconer's Farm.

Divisional and Corps Headquarters will be informed of these changes.

Problem 10.

(To be solved at Hawkesbury.)

The Director of Medical Services has decided to recommend that a casualty clearing station be moved up nearer to front area.

You are Deputy Director of Medical Services of the First Corps. State who will make the arrangements and with whom, also select a suitable site for the casualty clearing station and give your reasons for selecting the place.

Solution to Problem No. 10.

The Deputy Director of Medical Services of the First Corps will issue instructions for the move of the light section of the casualty clearing station through the A branch of the staff. He will arrange with Q branch of the staff for transport for the removal of the casualty clearing station.

The Deputy Director of Medical Services will notify all concerned of the move, stating the place at which the casualty clearing station will be established and the hour at which it will be open to receive patients. The Seacliff Asylum (B.73) is the most suitable in the

district for a casualty clearing station as the building is already equipped (the patients have been evacuated to the base) and there is room for expansion. It is near a good road and near the railway main line and a branch line could easily be laid into the hospital grounds.

The equipment of the remaining portion of the casualty clearing station will be packed in the possibility of another move.

Secret.

Copy No.

Brownland Expeditionary Force.

Operation Order No. 4.

February 4, 1927.

Reference: Dunedin Topographical Survey.

1. It is reliably reported that the enemy (strength one mounted regiment brigade and two infantry brigades with artillery and armoured cars) is entraining at Burnham (200 miles north of Dunedin) and may be expected to attack us to-morrow.

2. (a) The First Division will move north tomorrow and seize and make good a bridgehead north of traffic bridge (X.00). (b) The First Regiment Mounted Rifles and First Medium Artillery Brigade will come under the command of First Division for the operation.

3. No. 1 Squadron Royal Air Force will cooperate with the First Division during the operation.

4. Reports to Post Office, Port Chalmers.

5. Acknowledge.

(Sgd.) J. BROWN,
Colonel on the Staff—General Staff,
Brownland Expeditionary Force.

Issued by S. D. R. at 2245 hours.

Secret.

Copy No.

Brownland Expeditionary Force.

Administrative Instructions No. 16.

February 4, 1927.

1. Reference is made to Brownland Expeditionary Force Order No. 4 dated February 4, 1927.

2. *Supplies.* (a) Supply railhead for the First Division and attached troops will open on February 5 at Waitati Railway Station (G.45). (b) One divisional train will draw direct from the Main Supply Depot on February 5 and direct from railhead on February 6 and direct from railhead on February 6.

3. *Ammunition.* Divisional and Corps Troops Ammunition Companies will draw direct from Main Ammunition Depot on February 5 and 6.

4. *Medical.* No. 1 Casualty Clearing Station will be established by 0900 hours tomorrow in paddocks at G.3653 (Merchiston).

5. *Mechanical Transport.* (a) No. 2 and No. 2 Division Maintenance Companies will each place 88 three-ton lorries at the disposal of the First Division for twenty-four hours commencing at 0001 hour February 5. The Corps Troops Maintenance Company will similarly furnish 35 three-ton lorries. (b) The Corps Troops Maintenance Company will also place eight three-ton lorries at the disposal of the First Casualty Clearing Station for twenty-four hours commencing at 0001 hour February 5.

6. *Prisoners of War.* The advanced post maintenance will establish a cage at Evansdale Racecourse (G.48) by 0900 hour tomorrow.

7. *Veterinary.* The veterinary expeditionary services will be established at house (B.7936) by 1200 hour tomorrow.

(Sgd.) J. GREEN,
Colonel on the Staff, D.A. and Q.M.G.,
Brownland Expeditionary Force.

Issued by S.D.R. at 2330 hours.

Secret.

Copy No.

First Division Operation Order No. 3.

February 5, 1927.

Reference (a) Dunedin topographical survey, (b) special sketch.

1. Reliable information has been received that the enemy has yesterday entrained one mounted rifle

brigade, two brigades of infantry and two brigades of artillery, which force is proceeding southward with a view to attacking the Brownland Expeditionary Force today.

2. The division with the first mounted rifles and the first medium artillery brigade attached will move today in accordance with attached march table and establish a line: Hill (Square S.54—Tumai Station (X.35)—Mount Baldie—Durdon Hill.

3. Advanced Guard. Colonel-Commandant R. Snooks. First Regiment Mounted Rifles, First Brigade Field Artillery, First Field Company, First Infantry Brigade, First Field Ambulance.

4. No. 1 Squadron Royal Air Force will cooperate with the division throughout the day.

5. The Third Infantry Brigade, Third Field Company and Third Field Ambulance will move the entire distance by 'bus and must be prepared to come into action *ex* 'bus and without resource to the first line transport.

(a) Reports to Quayles Mena Manor (G.3754).

(b) Advanced report centres will be established successively at the sixteenth milestone (B.30), creamery (B.56) and road junction (B.8893) on these places being occupied by the main guard.

6. Acknowledge.

(Sgd.) J. PINK,
Lieutenant-Colonel, G.S.O.1, First Division.
Issued at 0100 hours by S.D.R.
Secret.

Copy No.

First Division Administrative Instruction No. 9.

Issued in Amplification of the First Division Operation Order No. 3 dated February 5.

February 5, 1927.

1. 'Bus Arrangements.

(a) The first and second division maintenance companies will each furnish eighty-eight lorries and the corps troops maintenance company will furnish three lorries to be drawn up in following order: First division maintenance company, second division maintenance company, corps troops maintenance company, with head at Road Junction (M.7385) at 0530 hour (facing N.E.). This column will be under command of Major X. (R.N.Z.A.S.C.) and will load and proceed to Merchiston under orders of Colonel-Commandant of the second brigade.

(b) The second brigade, second field company and second field ambulance will "debus" in Merchiston and convoy will proceed *via* Main Road to the southern recreation ground.

(c) The above convoy will then be at disposal of Colonel-Commandant of the third brigade at the southern recreation ground (Q.89) at 1000 hour and will proceed according to march table to Hawkesbury.

(d) Corps troops maintenance company will furnish four lorries to report at the Post Office, Port Chalmers, at 0430 hour and will be at disposal of field park company to convoy that unit in accordance with march table. These lorries will remain with field park company till 0900 hour on February 6.

2. *Supplies.* Supply lorries of the division train will draw rations from the main supply depot today which they will leave at 1700 hour, moving *via* Warrington (G.59)—meeting point. Omimi dairy factory (B.61).

3. *Traffic Control.* Troops are not to halt, "embus" or "debus" in the main road between Waitati and Evansdale schools (inclusive).

4. *Veterinary.* The mobile veterinary section will be established at Seacliff lunatic asylum by 1300 hour today.

(Sgd.) J. YELLOW,
Lieutenant Colonel A.A. and Q.M.G. First Division.
Issued at 0100 hours by S.D.R.

MARCH TABLE ISSUED WITH THE FIRST DIVISION OPERATION ORDER NO. 3. DATED FEBRUARY 5, 1927.

SECRET.
Copy No.

Serial No.	(a) Date.	(b) Formation or Unit.	Place.		(e) Starting Point.	(f) Time. Hour.	(g) Route.	(h) Remarks.
			(c) From	(d) To				
1	February 5 ..	M.T. Batteries Med. Art. Brigade..	Dunedin	Evansdale ..	Normanby Hotel (M.14)	0530	Main Road	(a) Not to pass road junction (G.431) before 0745 hours. (b) To park at school (G.3888) by 1015 hours.
2	February 5 ..	Second Inf. Brigade Second Field Co. .. Second Field Amb. (less First Line Transport)	Port Chalmers	Hawkesbury..	Creamery (G.36)	0830	Main Road	(a) Moving under orders of Second Brigade. (b) By bus to Merchiston. (c) Halt for one and three- quarters hours on arrival at Mullaney's (B.57) and get into a paddock to west of road during halt.
3	February 5 ..	Field Park Co. (less Horse Train vehicles)	Port Chalmers	Puketariki Stn. (B.95)	P.O. (M.7878)	0530	Holland's Em. (G.89) and Warrington.	By bus accompanying own M.T. H.T. vehicles attached to Second Brigade until branching off at Evansdale.
4	February 5 ..	First Line Trans- port of the Second Infantry Brigade Second Field Co. Second Field Amb. and Horse Train of Field Park Co.	Port Chalmers	Hawkesbury..				Move under orders, Second Brigade. M.T. move independently and to be parked at school (G.3889) by 0750 hours. H.D. transport to be drawn up at Quayle's Mena Manor (G.35) ready to join units by 0800 hours.
5	February 5 ..	Divisional Artillery	Dunedin	Hawkesbury..	Road Junction (L.9333)	0715	Move to S.P. east of George St. and through Thence via Leith Valley.	(a) Marching under orders of C.R.A. (b) Halt between 1140 and 1325 hours.
6	February 5 ..	Med. Art. Brigade.. (less tractor-drawn batteries)	Dunedin	Hawkesbury..	Normanby Hotel (M.14)	0800	Move to S.P. east of George St. and through Thence via Main North Rd.	Halt with head at 12 milestone (G.35) till 1310 hours.
7	February 5 ..	Div. Amm. Column	Dunedin	Hawkesbury..	Normanby Hotel (M.14)	0810	Move to S.P. east of George St. and through Thence via Main North Rd.	Halt between 1140 and 1310 hours.
8	February 5 ..	First Line Transport Third Infantry Battalion Third Field Co. Third Field Amb. ...	Dunedin	Hawkesbury..	Normanby Hotel (M.14)	0815	Move to S.P. east of George St. and through Thence via Main North Rd.	Halt between 1140 and 1310 hours. M.T. of Third F.A. to proceed inde- pendently via Leith Valley and to be parked at school (B.4036) by 0830 hours.
9	February 5 ..	Third Inf. Brigade Third Field Co. Third Field Amb. ... (less First Line Transport.)	Dunedin	Hawkesbury..	Octagon (48713)	1025	Main Road.	Move by bus under orders, Third Brigade. To be embussed in southern recrea- tion ground (Q.89) by 1030 hours.
10	February 5 ..	Baggage Section ... Div. Train	Dunedin	Seacliff Lunatic Asylum (B.73)	Normanby Hotel (M.14)	1500	Main Road, Warrington.	
11	February 5 ..	Div. Amm. Column	Dunedin	Seacliff Lunatic Asylum (B.73)	Normanby Hotel (M.14)	1515	Main Road, Warrington.	

(Sgd.) J. PINK, Lt.-Col.
G.S.O.I., First Division.H.Q.
1st B.
(B.)
2nd
3rd
4th
1st B.
Prop
BaH.Q.
H.Q.
H.Q.
H.Q.
5th
6th
7th
8th
1st
2nd
C
2nd
1st
ProH.
9
10
11
12
21
31
41
1
1
2
1

SCHEDULE SHOWING DISTRIBUTION OF TROOPS ON FEBRUARY 4.

Divisional Units.	Non-Divisional Units.	Lines of Communication Troops.
<i>At Blueskin Bay.</i>		
H.Q. 1st Brigade at Manor (G.3654) ... 1st Battalion on Outpost from Wilson's (B.60) to Huggins's Farm (B.21) ... 2nd Battalion, Evansdale (G.38) 3rd Battalion, Raich's (G.37) 4th Battalion, Nicols (G.37) 1st Brigade, F. A. Merchiston (G.35) ... 1st Field Company, Merchiston (G.35) ... Proportion Baggage Lorries for Blueskin Bay Troops, 1st Field Ambulance ..	1st M.R. at Storey's (G.39).	
<i>At Port Chalmers.</i>		
H.Q. 1st Division H.Q. 1st Division Artillery H.Q. 1st Division Engineers H.Q. 1st Division Signallers H.Q. 2nd Brigade 5th Battalion 6th Battalion 7th Battalion 8th Battalion 1st Field Park Company 2nd Field Company Proportion Baggage Lorries for Port Chalmers Troops 2nd Field Ambulance 1st Division Hygiene Section Provost Company (less 1 Section)		G.H.Q. 1st Echelon. H.Q. of Services. Sub-Area Commandant.
<i>At Dunedin.</i>		
H.Q. 3rd Brigade 9th Battalion 10th Battalion 11th Battalion 12th Battalion 2nd Brigade Field Artillery 3rd Brigade Field Artillery 4th (Pack) Brigade Field Artillery Divisional Ammunition Column Divisional Ammunition Column No. 1 Mobile Veterinary Section 1st Section Divisional Provost Company	G.H.Q. 2nd Echelon 1st Medical Artillery Brigade 1st Anti-Aircraft Brigade Royal Artillery Survey Co. 1st Army Troops Company, Royal Engineers No. 1 Electrical and Mechanical Company, Royal Engineers No. 1 Workshop Pack No. 1 Field Survey Company, Royal Engineers Corps Signals No. 1 Division Maintenance Company, R.A.S.C. No. 2 Division Maintenance Company, R.A.S.C. Corps Troops Maintenance Company No. 3 Reserve Motor Transport Company, R.A.S.C. No. 1 Auxiliary Horse Transport Company, R.A.S.C. Corps Troops Ammunition Column, R.A.S.C. Advance Depot Medical Stores No. 7 Field Ambulance (non-divisional) .. No. 1 Casualty Clearing Station No. 2 Casualty Clearing Station No. 1 Mobile Ambulance Corps No. 3 Hygiene Section No. 4 Hygiene Section Mobile Hygiene and Bacteriological Laboratory No. 1 Mobile Workshop No. 2 Mobile Workshop No. 1 Ammunition Column General Stores Company, R.A.O.C. Anti-gas Mask Repair Workshop No. Veterinary Evacuation Station Advance Depot, Veterinary Stores Pay Unit Post Office Provost Signaller No. 3 Provost Company Printing Press Intelligence H.Q. and 3 Signallers, R.A.F. Advance Aircraft Pack	Area Commandant. Army Troops Company, Royal Engineers. No. 2 Electrical and Mechanical Company, Royal Engineers. Workshop, Royal Engineers. Store Depot, Royal Engineers. H.Q. Railway Construction and Maintenance. Railway Bridging Company, Royal Engineers. Railway Stores Company. Railway Workshops. Lines of Communication Signals. H.Q. Main Supply Depot. Lines of Communication Supply Company. Field Bakery. Field Butchery. No. 2 Auxiliary Horse Transport Company, R.A.S.C. Advance Horse Transport Company. Reserve Motor Transport Company, R.A.S.C. Auxiliary Motor Ambulance Company, R.A.S.C. Base Motor Transport Vehicle Reception Depot. Heavy Repair Shop, Motor Transport. Remount Depot. No. 4 Hygiene Section. No. 5 Hygiene Section. No. 1 General Hospital (1,200 beds). No. 2 General Hospital (600 beds). Convalescent Depot. No. 1 Ambulance Train. No. 2 Ambulance Train. Military Prison. Base Depot.

Distribution list as per Division Operation Order No. 3 plus Copy No. 31 to A.D.V.S.

Note: Division would have arranged extra mounted troops for the mobile veterinary section and provost company.

REMARKS BY THE DIRECTING STAFF.

Those attending the exercise were addressed on February 4, 1927, by the Director of Medical Services on medical organization and by Lieutenant-Colonel Thoms who explained the general situation; Lieutenant-Colonel Thoms showed specimens of the various orders required and also demonstrated by a graph the movements of the various units of the Division.

The officers attending the exercise were divided into eight syndicates, each syndicate being led by a senior officer of the Australian and New Zealand Medical Corps.

On Monday, February 7, 1927, the officers attending the exercise assembled to hear the criticism of the directing staff on each syndicate's work. A discussion also took place on each problem and its solution.

The Directing Staff in criticizing the solutions sent in by the syndicates wished to record its gratification at the general excellence of the solutions, especially the general skilful handling of situations requiring initiative. The absence of details in some of the solutions was accounted for by the fact that the scheme had to be completed in one day. It was also evident that very few had had experience in working the new organization of a field ambulance. The staff considered that the solutions showed that two great lessons had been particularly emphasized: (i) The necessity of detailing stretcher squads to be attached to regimental medical officers of battalions prior to going into action, thus insuring a communication between regimental aid posts and advanced dressing stations and (ii) that evacuation from the main dressing stations to the casualty clearing stations was by a M.A.C. which was a company's unit and so not under the control of the Assistant Director of Medical Service division. The Directing Staff also pointed out that a tactical exercise was primarily an instructional exercise and must therefore of necessity be arranged to follow closely the text books and regulations. As far as official solutions were concerned, these must be based strictly on established custom. Moreover, conditions had to be modified a good deal to condense such a tactical exercise into one day's work.

Special Meeting.

THE RÔLE OF THE MEDICAL PRACTITIONER IN THE PREVENTION OF DISEASE.

By J. NEWMAN MORRIS, M.B., B.S. (Melbourne),
Honorary Surgeon to Out-Patients, St. Vincent's Hospital,
Melbourne.

THERE is a growing conviction of the need to recognize the essential unity of the preventive and curative activities of the medical profession. A survey of some of the literature of preventive medicine shows a unanimous insistence on this blending which has been increasingly manifest since the close of the Great War. The successful application of the methods for the prevention of disease amongst the armies in this and other recent campaigns was the greatest practical demonstration the world has ever seen. In a larger army than had ever before been in the field, the incidence of disease was often lower than in times of peace. The desire to repeat these results in the civil population has been balked by the impossibility of applying military methods to the ordinary citizen and to the medical profession. There is also an obstacle

in the absence of an educated public opinion on the part of the one and a definite preventive programme on the part of the other.

Sir George Newman has pointed out that the foundations of the modern public health system were laid in the Hunterian period and that this was the work of the private practitioner. "The conception of practical prevention was born in his mind and sprang out of his clinical study and experience."

Although public health work was originally performed by the general practitioner, its direction has gradually passed into the hands of specialists who devote their whole time to it. Notable work in the prevention of disease has been and is still being done by individual general practitioners, but the primary objective of the practising profession is the cure of disease. Although it may be said of the medical profession as a whole, with Osler: "No longer is our highest aim to cure, but to prevent disease," yet the work for which the medical practitioner is primarily trained, is the treatment of disease and this is his daily business. The problem which confronts the leaders of the campaign for prevention is how best to enlist the general body of the practising profession in the work of the prevention of disease. A very great deal of propaganda work has been done in this direction and some practical suggestions have been made.

The strategic importance of the general practitioner in the fight against disease and in the promotion of health has been referred to so often and so eloquently that it is unnecessary to linger on this aspect of the matter. The report of the recent Royal Commission on Health in Australia says:

Medical practitioners are among the first to come into relation with those who are affected with illness. They have the first, and consequently generally the best opportunity of taking or advising steps for prevention, especially when the illness is infectious.

It is generally recognized that the relative importance of the prevention of disease is not sufficiently emphasized in the training of the medical practitioner and the recent request of the General Medical Council is designed to remedy this defect. A graduate of 1926 who obtained first-class final honours in all subjects, and who may therefore be regarded as observant, sums up his impressions of the teaching of preventive medicine in the Medical School of the University of Melbourne in these words:

In medicine I think one rather gains the impression that it is the diagnosis and treatment that matters most. In surgery, again, there is little mention of "prevention," unless one classes the careful teaching of asepsis as part of preventive medicine which I suppose it really is. On the whole I think the impression gained during the course is, oh, of course, preventive medicine—most important, but that's the business of those public health fellows, isn't it? And most of us are not going in for that, so we had better stick to diagnosis and treatment.

The medical student ends his undergraduate days in an intense concentration on the diagnosis and treatment of established disease in sick people, spends a year or two in hospital which is not concerned with prevention and passes into practice to earn his livelihood, not by preventing but by diag-

nosing and treating disease, the work for which he has been trained. There is no trend towards prevention in his mind. The desire to prevent disease does not possess him and it is actually opposed to his economic needs. If his "highest aim" is to be prevention, then there must be a steady inculcation of the ideal of prevention from the day he starts his medical studies. In no medical school is this done. It is, therefore, necessary to stimulate the interest of the general practitioner in the prevention of disease. The Federal Committee report states that there is a lack of inducement for the practitioner to develop his public health knowledge and the official statement has been made by the British Medical Association in England that "it is essential that the attention of all practitioners should be directed continually to the preventive aspects of their work." These statements indicate the existence of a general impression that there is an absence of a constant realization of a preventive aim in the profession. This impression is supported by inquiries made recently amongst individual practitioners, none of whom was able to state that they intelligently adopted definite preventive measures in their practice.

An educated public opinion on matters of health promotion and disease prevention is a *sine qua non*. It has been said that "the most perfect system of preventive medicine in the world would not reduce preventable disease more than 20%. The other 80% depends on individual knowledge and action." It is probably true that the greater part of the knowledge of health possessed by the ordinary private citizen is learned from his family doctor, to whom he will listen when he will not read the literature or listen to the lectures of health promotion propagandists. The family doctor is, as Newman says, "the missionary of health."

No opportunity should be lost of telling the facts of the prevention of disease and even at the risk of losing patients the profound belief in the bottle of medicine as the chief preventive and curative agent should be eradicated.

"For those who seek him in time of sickness," says Fitzgerald, "the physician's office should be a health centre available for the purpose of health promotion and disease prevention, thorough examination, advice and teaching. By such teaching the value of ante-natal care, of infant and child age supervision and periodic medical examination will be comprehended by the patients who come under the care of the private physician."

Although publicity work is seldom welcomed by the general practitioner, it is quite permissible and indeed desirable for him to take suitable public opportunities to aid in the work of prevention in his own district. This he can do by giving service on committees, for example, of baby welfare centres, in municipal bodies and more especially in Parliament or by delivering lectures on the preventive aspects of medicine under the auspices of organizations approved by the British Medical Association. "We, as ministers of health," said the President of

the American Medical Association, "must unceasingly preach—preach pure water, fresh air, sunshine, sanitary environment, plain wholesome food, exercise and right living—to defeat the powers of darkness and bring the purity of heaven to earth."

Advice is often sought, though not frequently enough, by those about to marry and it is sometimes the unpleasant duty of the doctor to repeat the famous advice "Don't." The prevention of diseases transmitted by parent to offspring may thus be effected. Knowledge of the existence of venereal disease, tuberculosis, alcoholism, drug habits, mental diseases, epilepsy and hæmophilia will aid the doctor in this preventive work by enabling him to point out the dangers which may follow marriage.

Again apparently healthy people at times apply for examination. They should be greeted neither with an amused smile nor with a frown, but should be given a serious and thorough examination. Periodical overhauls should be encouraged by the general practitioner. There is a large field in preventive medicine in the detection of disease in its incipience, before it has given rise to symptoms which would lead the patient to consult a physician, and in the correction of habits of living or personal hygiene which would predispose to disease. Examples are cancer, tuberculosis, hypertension, early cardiac impairment, diabetes, obesity, constipation and infected tonsils. These conditions can be detected only by systematic examination of the apparently healthy. The Government cannot perform this service; the family doctor must be called on to render it.

Although the general adoption of such examinations is so desirable, there are some difficulties in the way, as for example in the absence of accepted standards of health and also from the financial point of view. Although it is claimed that in contract forms of practice it would pay the doctor to keep his healthy patients well, this would involve the periodical examination of them and their dependants. At the present rate of lodge remuneration this would not provide a very comfortable livelihood, if the examinations were thoroughly made. The busy lodge doctor would have no time for such work.

Dr. Hone had said that "what is needed for the practice of medicine is the spirit of research through all the practitioners" and the late Sir James Mackenzie would have all general practitioners to be investigators. "There are fields of research," he said, "which block the advance of medicine which can only be worked out by him." Research by general practitioners has received neither adequate encouragement nor aid and yet the potential value of such research on practical lines is almost universally recognized. Here is one direction in which valuable work could be carried out in cooperation with public health authorities. Notable instances of the value of such work are available as examples: the Hookworm Campaign in Australia, the investigation into diphtheria in Tasmania, the well-known

Framingham experiment in tuberculosis in America. The practical aid in the prevention of disease which can be given by general practitioners on research lines was thus demonstrated. Such cooperative effort also serves to keep the preventive aspect of his work well before the general practitioner.

The public duties in connexion with prevention of disease are performed mainly by whole-time officials, but certain legal obligations are imposed on the practising profession. These comprise mainly notification of certain prescribed infectious and other diseases. No administrative duties are assigned to him, although he comes into particular relationship with the State in other ways not especially concerned with the prevention of disease. Public health officials regard notification as important and complain that it is incomplete and delayed, especially of tuberculosis. They state that full co-ordination between the general practitioner and public health authorities has not yet been attained. In this connexion the Federal Committee in its report on the cooperation of the medical profession in public health states that: "in no State is the service of the practising practitioner officially utilized for the prevention of disease to any degree consistent with his knowledge and opportunity" and in recommending the linking up of the general practitioner into active participation in the administrative scheme, makes concrete suggestions to this end. These have been already published and include notification of births, still-births, deaths and cases of mineral and organic poisoning, in addition to prescribed infectious diseases, statutory administrative duties in the control of infectious diseases (as by examination and preventive inoculation of contacts), and the issuing in writing of prescribed methods of disinfection and other duties as prescribed by regulation. The Royal Commissioners concur in these suggestions and also suggest that special and detailed reports shall be furnished in all cases of puerperal mortality. They recommend also that such statistics as are required shall be furnished by medical practitioners. These new duties of notification, administration and reporting would be additional legal obligations; for the performing of them payment would be made; for their neglect penalties would be imposed.

There is no doubt that on these lines very much aid would be given to the health department in carrying out its necessary duties. The attachment of such functions to the family doctor would also serve to remind him more constantly of his preventive rôle. Many of them would require only occasional performance and would not add very materially to his burden of work.

It is impossible to forecast all the duties which may be legally imposed on medical practitioners, but a few may be mentioned as examples. Those concerned with the control of infectious diseases would probably be the most important and most easily imposed. The following have been suggested by Dr. Cumpston:

Taking and forwarding swabs from diphtheria patients and contacts.

Obtaining verification of diagnosis in suspected cases of typhoid fever.

Sending for examination specimens of fæces before release of patients after typhoid fever.

Inoculating all house and family contacts with a prophylactic dose of vaccine in case of typhoid fever.

Examining and reporting upon the condition of all houses and family contacts in the presence of open tuberculosis and advising the district health officer of the presence of any early manifestations of tuberculosis, together with recommendations for appropriate institutional treatment.

In many other directions, for example, in connexion with infant welfare work, prevention of puerperal mortality, treatment of ascertained defects in school children, the practising profession as a whole could be included in a comprehensive scheme under the general direction of the health department for the improvement of the standard of community health.

With the advance of knowledge in the management of infectious disease there will be added further similar duties about which public health officials could give more precise information. None of them is beyond the skill of the well-trained practitioner. Many of them would require attention only at long intervals and the profession would not be justified in obstructing their imposition or in failing to perform them. Sir George Syme said at the last Congress: "Every conscientious practitioner does help in the prevention of disease as opportunity offers" and many practitioners already voluntarily include such functions as have been mentioned in their ordinary work. They feel a moral responsibility to give directions for the isolation of patients suffering from communicable diseases and to quarantine or disinfect, examine and give prophylactic inoculations to contacts. It would be no great hardship to convert the moral responsibility into a legal one.

The notification of births, still-births, and deaths to the district medical officer will result in more accurate certification. The alert practitioner who recognizes a case of mineral poisoning, is awake to the need for prevention and has in the past usually taken steps to bring its incidence under the notice of responsible people. Again, with reports on puerperal mortality, that most regrettable and preventable of deaths, no valid objection can be made.

All these new duties, in addition to the great help afforded by them to the health department, will improve the standard of practice. The conscientious practitioners—and they are in the majority—will be aided in both curative and preventive work; those who are dilatory and slack, will be shown up and will be compelled to improve the quality of their work.

It is recognized that every facility, diagnostic and otherwise, should be placed within the reach of all practitioners who will be called upon to carry out these duties.

Another suggested legal obligation is that of the furnishing by medical practitioners such statistics

as are required to the statistician. Lack of knowledge of the extent of morbidity in the general public is deplored by public health authorities and they are casting envious eyes on the possibility of supplying this need from the facts in the possession of the practising profession. Such knowledge is necessary in dealing with the prevention of preventable sickness, as opposed to mortality. There are no adequate morbidity statistics. The total volume of sickness and the amount due to various causes can only be estimated in a very general way. A compulsory furnishing of statistics, such as has been recommended, would no doubt add very considerably to the clerical work which is never welcomed by the busy practitioner. A similar regulation was objected to by panel doctors in England, but no protest has yet been voiced in Australia on the proposal.

Here again, as Dr. Cox has said, such a duty "may have a useful disciplinary effect on many who are unbusinesslike and keep no records of their cases." It has often been found by Repatriation Commissioners and others that records of cases are not kept by some practitioners, but this very necessary duty is being performed more generally and an annual scrutiny and classification of these records would be of immense educational value to the individual doctor, as well as to the nation, if made available.

Many schemes have been suggested by which the practising profession shall become an integral part of the personnel which guards the health of the people. They take the form in most instances of the formation of health districts with local control under central supervision. There is no scheme yet formulated which defines the complete detailed relationship of the general practitioner. This is a difficult but not impossible task and it is necessary that it shall be done. Such a scheme should have regard to the preservation of the independence of the practitioner who is not yet ready for nationalization. His preventive duties must be made compatible with his curative work. The particular activities of a public kind must be enumerated and defined. Adequate facilities for diagnosis and for the performance of other duties must be available and within reasonable distance. A fair and reasonable rate of payment for the performance of preventive duties must be fixed and this should be on the same scale as the fees received for curative work. The diseases treated in private practice have been materially affected by the results of preventive medicine in the last twenty-five years. Typhoid fever, advanced tuberculosis and venereal disease and severe anæmia are amongst the diseases less frequently met with. Still further changes may be expected and these changes will in large part be due to the amount of preventive work being done by the private practitioner. Remuneration must therefore be made to balance that lost by the disappearance of disease or the medical profession will be in danger of extinction.

The State has never very earnestly sought the cooperation of the medical profession on a big scale in the campaign against disease. The salaries paid

to its own whole time medical officers of health are inadequate and unattractive in comparison to the highly important functions which the officials are called upon to fulfil. They compare very unfavourably with salaries paid to other State officials, especially in the higher ranks, whose duties are not of such economic value to the nation. The remuneration paid to the practising profession for the performance of statutory duties is absurdly small and out of date and needs revising. Fees of one shilling and sixpence for notification and two shillings and sixpence for certification offer no practical inducement to take an interest in preventive medicine. The establishment of free and complete supplies in local depôts of throat swabs, sterilized containers for pathological material, certificate forms and similar detailed conveniences has never been adequately attempted. The establishment of accessible diagnostic laboratories has been very slowly proceeded with. In these and many other ways the State has failed to interest the general practitioner in the preventive side of his work. A genuine request made to the medical profession to formulate a detailed scheme of prevention would be most loyally and sympathetically received. Every pronouncement on the prevention of disease made by the British Medical Association, as representing the practising profession, has insisted on the prime importance of the subject. This Congress and its predecessor placed prevention in the forefront of the discussions. The founders of the British Medical Association in 1832 remembered it in laying down the objects of Association; and before a recent Royal Commission on National Insurance in England it was officially stated by the British Medical Association that "it is of paramount importance that regard should be had primarily and constantly to the maintenance of health and the prevention of disease and not merely to the provision for the alleviation or cure of morbid conditions when once they have arisen."

That is the creed of every well-trained and conscientious medical practitioner. He is willing to do his valuable part in the work of prevention and to regard his duty to the State in the same light as his duty to himself.

THE RELATIONSHIP OF THE PRIVATE PRACTITIONER TO THE STATE.

By M. H. WATT, M.D., D.P.H.
Deputy Director-General of Health, New Zealand.

DURING the past quarter century state medicine has shown a definite tendency to include measures of personal hygiene within its scope until by imperceptible stages its emphasis has come to be upon the individual rather than upon the environment and the erstwhile limited subject of public health has broadened out into the important one of preventive medicine. To-day the State takes an active interest in the prevention and treatment of disease, infectious and non-infectious alike, as witness its many schemes dealing with such matters as ante-natal care, maternity and infant welfare, medical

inspection of school children, treatment of tuberculosis and venereal diseases, *et cetera*. The State is notoriously conservative and it can safely be said that its incursions into the domains of medical practice were because of the crying need for reform and in recognition of the fact that existing agencies were unable to provide the public with the standard of medical care which they required and demanded.

The private practitioner turns a watchful eye upon these activities of the State and has an uneasy feeling that they foreshadow a continuing restriction of his own sphere of influence or possibly even his enforced incorporation in some scheme of State medical service. The position is not so black as he imagines, but there is certainly need for thought on his part. Opportunity has knocked at his door in the past and has at times gone unheeded. Opportunity still knocks and it is for him to say whether he will answer the call and adapt himself to altered conditions of practice or will ignore the summons and leave it to be answered by the State with consequent further inroads on his livelihood.

In this brief article it is proposed to discuss the relationship of the private practitioner to the State with a view to stressing the new outlook in medicine and pointing out how the profession may best cope with the situation which now confronts it. The matter is dealt with from the point of view of New Zealand, which has a hospital system peculiar to itself, consequently the remarks which follow, may not be wholly applicable to other places.

The State registers the medical practitioner provided it receives an assurance that his training has been adequate and that his conduct and character are above reproach. Registration confers the right to use the title of doctor, to sign death certificates and other legal documents, to hold hospital and other public appointments and to sue for fees. It does not give a monopoly of the practice of medicine as unregistered people may still treat disease subject only to the limitations implied in the last sentence.

The State in its turn imposes certain obligations upon the registered medical practitioner, the principal ones being notification of infectious and occupational diseases and certification of the cause of death. Notification of disease is of increasing importance. To-day in New Zealand this action is required in the case of thirty-three separate diseases. Despite the two shillings and sixpence which he receives for each notification form he completes and forwards to the Department of Health, the private practitioner is apt to find the procedure irksome and he can reasonably ask that the State should periodically review its methods and not demand notification unless some definite purpose is served thereby. "Notification," it has been well said by Sir George Newman, "is the impulse which sets the official health machinery in motion. If the appropriate machinery is lacking, notification can do nothing; it is merely a waste of money."

In the past the private practitioner has been interested almost entirely in curative medicine and preventive medicine has proved an uncharted sea into which he has made at most an occasional voyage

of exploration. The reason for this has been the nature of his training. Until within quite recent years the emphasis of the medical course was upon the diagnosis and treatment of disease, very often indeed of advanced disease, and not upon its prevention. To-day a new era is opening in medicine which deals with positive health, not merely with the negative absence of disease. There is a recognition of the wisdom of the old adage that prevention is better than cure and an ever growing appreciation of the importance of preventing disease entirely or at least of checking it whilst in its earliest stages. Pathology is being displaced by physiology as the dominant subject in the curriculum of the medical student. The day is rapidly coming when the private practitioner will without question regard it as equally his duty to advise his patients how to prevent ill health and to improve their conditions of life as to attend at their bedsides when they are incapacitated with disease.

The orbit of the private practitioner lies between the consulting room, the patient's home and the hospital. In all three places he can be an active force in preventive medicine and the activities of the State in each place will be in inverse proportion to his own.

In the consulting room he should remember that a periodic overhaul of the human machine is a good thing and that sound advice may nip disease in the bud or even avert it entirely. The idea that what has been found good for the school child, may be equally good for the adult is gaining ground and the public is becoming interested in the suggestion that it should receive an annual medical examination even if apparently in the best of health. Such an examination requires a careful and thorough investigation of each organ and function. It takes time and skill. The doctor must know what is expected of him and be prepared to give full value for the fee he receives. The patient who appears for his annual medical overhaul and is dismissed with habits potentially harmful left uncorrected or with the beginnings of disease unrecognised and untreated, will certainly be dissatisfied and cannot be blamed if he loses faith. The periodic health examination movement came in America before the doctor was prepared. Organizations such as the Life Extension Institute saw the possibilities and have largely ousted the medical profession of that country from their legitimate sphere. The movement is here to-day. It is hoped that the medical profession will organize itself for the work, as otherwise there is a risk that the State may be forced to take a hand and develop its hospital system for this special branch of service to the exclusion of the person who most properly can undertake the work, namely, the family doctor.

In the home the doctor must remember that he is concerned not only with the patient, but with every member of his family. In the case of diphtheria, for instance, he must be prepared to examine other members of the household, so as to determine whether they are free from infection, to advise the precautionary measures they must observe in order to avoid infection, to immunize them when necessary

with antitoxin or to refer them to the proper quarter where this procedure will be available to them. In the case of tuberculosis he must be prepared to examine contacts and to recommend what action they should take to remain free from disease or what treatment they should adopt if found to be already infected. If he neglects these measures, he cannot complain if the State steps in and does the work, possibly taking his patient away from him in the process. It is not suggested that the doctor should serve in this wider capacity without adequate remuneration. Patients who can afford it, should, of course, pay for any advice and treatment they receive. Indigent patients should be referred wherever possible to the nearest hospital or if living in localities remote from any public institution, should be treated by the doctor at the expense of the Hospital Board.

In the case of the hospital the position bristles with difficulties and there are all the elements for discord between the private practitioner and State. The hospital system of New Zealand provides a most excellent service for the public, but is not always quite fair to the doctor. The private practitioner complains in the first place that some of the hospitals are staffed by full-time medical officers, thus depriving him of the opportunity of clinical experience and in the second place that the State competes unfairly with him in so far as patients able to pay for private treatment are at times admitted to the public hospitals.

As regards the first complaint there is no doubt that it is in the interests of the community as a whole that the privileges of hospital practice should not be confined to a few full-time medical officers of the Boards, but that as many private practitioners as possible, compatible with the smooth and efficient working of the institution should be on the staff. In this way the hospital takes its rightful place as the most important force in post-graduate medical education and skill and experience acquired in the hospital are spread over the whole community to the benefit of all parties concerned.

As regards the second complaint the principle behind the hospital system of the Dominion is that the resident of a hospital district may, irrespective of his financial position, claim as his right that he shall be admitted to the public hospital for treatment. This principle is too deeply rooted to be lightly overthrown. The State which in its ultimate resort is public opinion, may sympathise with the doctor in his dilemma, but certainly is not likely, while remedying an injustice to one limited section of the community, to impose a greater injustice upon a larger body of people.

It would appear then that there is an impassable barrier in the way of a smooth relationship between the private practitioner and the State, but as so often happens in the case of impassable barriers, there is a way round. The way round in New Zealand is the paying ward for private patients. This system whereunder the patient who is prepared to pay for the special privileges he obtains, can be accommodated in a private room in a public hospital and be attended there by the doctor of his

choice, is coming by evolution. It is unlikely that there will ever be large blocks of private wards in connexion with our public hospitals, but there certainly will be a few beds available for the accommodation of the patient who requires special facilities for diagnosis or treatment which otherwise are not obtainable by him, for example, extensive biochemical or X ray examinations, radium therapy and so forth. The existing private hospitals are able to accommodate ordinary patients at cheaper rates than the public hospital can ever hope to do and will not be displaced, but will rather be supplemented in the direction indicated.

The hospital system in New Zealand is so widely developed that the private practitioner must come in touch with it at every turn. The relationship of the private practitioner to the State is in a large measure that of the private practitioner to the public hospital. It is necessary, therefore, to consider how the services of the private practitioner may be best coordinated with the hospital, having due regard to the rights and privileges of both doctor and patient. Certain reforms in the use of the hospital by the patient which are in the interests of the private practitioner, have already been mentioned. There are also important reforms in the use of the hospital by the doctor which are in the interests of the patient. To these brief reference will now be made.

The practitioner should make free use of the hospital when confronted with difficult cases requiring for diagnosis more elaborate equipment than is at the disposal of himself or his colleagues. He should refer such patients to the public hospital. The latter institution may deal with the patients either as out-patients at a group clinic such as has been organized by the Johns Hopkins Hospital where a patient has a complete diagnostic examination for twenty-five dollars and a less full examination for a lesser sum or as inpatients in the method adopted by the Henry Ford Hospital, Detroit, where the patient is taken into the building only for such time as enables a diagnosis to be established. The principle is the same in both cases. The hospital does not give treatment which can be equally well given in the home, but merely diagnoses and then returns the patient to the private practitioner with full information as to the nature of the disease and the treatment which should be adopted. Some system of closer cooperation between the private practitioner and the hospital on the lines just suggested would be of undoubted benefit both to the doctor and his patient.

The hospital again should be the home of the intellectual life of the medical man in a district. It is the place *par excellence* where the doctors whether on the staff or not, should meet periodically for clinical instruction and education. Discussions and demonstrations of interesting cases or of new methods or appliances should occur regularly. In this way the hospital will be the centre of medical education and research and will exercise a stimulating effect on the whole medical life of the community.

And now a word in conclusion about the bogey of nationalization which ever and anon rears its head. It is the firm belief of the writer that nationalization of the profession, by which is meant the replacement of the private practitioner either wholly or in part by full-time salaried medical officers paid out of public funds, is not in the interests of the profession or the community. Competition means progress, while nationalization would almost inevitably tend towards stagnation. Fortunately the intimate personal relationship between patients and doctor of his own choice which is the basis of private practice, is too strong a force to be easily overthrown by any specious demand for nationalization. The remedy for such ills as are at present found in the medical world is not to do away with the private practitioner, but rather to widen his sphere of duties and to fit him into the existing scheme of things in such a way that his services can be used to the fullest advantage. The ideal towards which we should strive is, in effect, for the private practitioner to function as a medical officer of health interesting himself with the prevention of disease as much as with the cure and care of the patient.

RELATIONSHIP OF MEDICAL PRACTITIONERS TO HOSPITALS PARTICULARLY IN REGARD TO THE PREVENTION OF DISEASE.

A NON-MEDICAL POINT OF VIEW.

By R. J. LOVE,
Inspector of Hospitals and Charities, Victoria.

The points to be considered are whether and if so how far the operations of hospitals which have hitherto been regarded as curative agencies only, should be extended to take in any particular phases or sections of the science of preventive medicine. And also whether such an enlargement of the sphere of hospital activities should make any difference and if so in what direction in the relations of medical practitioners with those institutions.

In order to arrive at a right understanding it is desirable to consider in the first place exactly in what position the medical profession stands in regard to hospitals as at present constituted. This matter has been much discussed for many years, but though more or less satisfactory working arrangements have been evolved, these are not uniform and do not rest on any generally accepted statement of principles from any authoritative body competent to speak on behalf of the profession.

A uniform settlement of this question has been so obviously and imperatively necessary for many years, that it is difficult to determine why a practical and acceptable working scheme has not yet been brought into effect. Periodically some mild local agitation has been made, but nothing appreciable has resulted. It appears that the tendency has been to aim at perfection in one move, but the attainment of this, calling as it does for consideration of so many factors, is being and will be long delayed. In the meantime it would be well, perhaps, to commence with something which will give a

reasonable measure of relief and at the same time be capable of expansion to meet a final objective. But has this objective been defined in such a manner as to win general approval? There may be something on record to which members of the medical profession aspire, but it should be realized that no scheme can be regarded as feasible unless there is a reasonable possibility of its acceptance by the public.

It seems therefore, to the onlooker, that a general and uniform expression of the opinion of the British Medical Association, an organization representative of practically the whole of the medical profession throughout Australasia, is a prime essential.

Almost alone amongst professional men the medical practitioner is expected to and does willingly give a large amount of time and apply his special skill, the result of a long and expensive training and years of observation and experience, without fee or reward. The demands on the medical man may be enlarged till they amount to exploitation and it is important to endeavour to arrive at some happy means whereby medical men may continue to give their services to the indigent sick without seriously prejudicing their chances of earning an income reasonably commensurate with their special qualifications.

From the point of view of the public who can be assumed to have both the physical and national welfare of the community at heart and at the same time show a spirit of fair play towards the medical profession, I think the position may be summed up in this way:

Let there be ample hospital accommodation and facilities for treatment of the indigent sick, where the best of medical attention will always be given freely and ungrudgingly.

Let those people who are able to pay full charges for hospital accommodation and medical attention, do so without any interference, always provided that there is on both sides full value for money in the matter of service.

Between these two extremes, let there be an arrangement whereunder every patient may obtain essential service without financial hardship or an undermining of his independence on the one hand or imposition practised on the doctor on the other hand.

Hospital policies vary throughout Australasia, but conditions surrounding the treatment of what are known as public hospital "cases" are similar. Although some charge may be made for accommodation and maintenance in hospital, the practitioner receives no fee or remuneration, indeed the patients are informed that their contributions to the hospital are not for medical attention. A condition of Government subsidies to Victorian hospitals lays down:

No medical or other officer attached to any institution shall be allowed to accept from patients either directly or indirectly any fee for his own use for services rendered at the institution. This must be made clear to patients who receive treatment or relief.

This free service to public hospital patients is known as honorary service to the indigent sick. The reward to the medical practitioner is a feeling of

having performed a kindly act towards someone in misfortune and restoring a sick individual to his place as a working member of the community, as well as what the "man in the street" regards as a wonderful opportunity of acquiring proficiency, experience and enhanced professional status. One cannot ignore that hospital appointments are eagerly sought by members of the profession, especially in those years immediately following graduation and that such positions extend the knowledge and skill of those appointed to the great benefit of the whole community by reason of the higher standard of medical practice. This desire for these hospital appointments has created an impression that the material benefits derivable are immense and out of all proportion to the true position. However, it is not required that any attempt be made to issue a profit and loss account on the subject.

Public hospitals are taken to be those institutions wherein patients, whilst paying a little or nothing for maintenance and nursing, are not called upon to contribute for medical attention. At these institutions the latest and best in the way of general, special and scientific equipment has been installed regardless of cost. The services of highly trained specialists, consulting freely with each other, are available, with the result that the public hospital patient obtains treatment which is practically unobtainable even for the very wealthy. These highly equipped and staffed hospitals also fulfil the important function of teaching future medical practitioners whose adequate training is entirely dependent on the efficiency of the hospitals.

A survey of the direction in which the community is drifting, is necessary in order if possible to stop that drift towards general dependence on free medical treatment. It should be borne in mind that the public hospitals are provided for the sick poor, that the cost of buildings and maintenance are met by contributions to charities, the government subsidy is to charities, the municipal grants are charity votes. But can it be accepted that the institutions are catering only for the indigent and that the intentions of the charitable public are being faithfully observed?

If the figures for Victoria can be interpreted as an index of the position in other States, it is clear that so far from this being correct, there is a constant growth both actually and proportionately in the numbers of people who are taking advantage of free medical treatment in public hospitals. It would be at variance with known facts to assume

that the average financial position of the community is depreciating and whilst more people may seek medical advice in minor ailments than was the case years ago, this could not account for the large growth. The only logical conclusion is that the spirit of independence is disappearing and the aversion to the acceptance of charitable relief is unfortunately weakening. It may be urged that the gap between public and private hospitals has become so great that a larger proportion of the population has been forced to seek charitable aid. This is no doubt partly true, but it only emphasizes the need for reform.

The following comparative figures are illuminating and demonstrate probably more forcibly than any narrative the truth of the above conclusions.

Therefore in twenty-six years:

The population of Victoria increased	21.4%
The number of in-patients increased	112.6%
The number of separate out-patients increased	160.9%
The number of out-patients' attendances increased	113.3%
Fees from in-patients increased	862.9%
Fees from out-patients increased	472.6%
Total patients' fees increased	730.7%
In 1901 the average payment per in-patient was	7.7s.
In 1926 the average payment per in-patient was	35.0s.
In 1901 hospital patients to population was	7.1%
In 1926 hospital patients to population was	14.5%

The public should not be held wholly to blame for this condition as it is only natural for people to go where they can get the best service at the least cost; the tendency towards the improper use of hospitals will increase unless facilities for treatment are widened and grades of hospitals established corresponding, as regards cost, with the respective grades of society.

The medical profession as well as the general community has in the past regarded the hospitals as charitable, chiefly supported by the State and by private benefactors, and all who could rightly claim to be deserving objects of charity, were admitted and treated gratuitously by the medical staff. Modern medical progress and the introduction of costly appliances for diagnosis and treatment have driven people who formerly obtained medical and surgical advice and treatment from the family prac-

VICTORIAN PUBLIC HOSPITALS, 1901 AND 1926.

Year.	Population of Victoria.	Patients Treated.			Fees Paid by Patients.		
		In-patients.	Out-patients.	Total Attendances.	In-patients.	Out-patients.	Total.
		Separate Patients.	Separate Patients.				
1901	1,400,000	25,351	74,086	379,129	£ 9,843	£ 5,042	£ 14,885
1926	1,700,000	54,008	193,325	808,913	94,784	28,871	123,655

tioner either in their homes or in private hospitals, to seek admission to public hospitals because of their inability to pay for the full investigations and treatment which are now necessary. After twenty-six years' experience in administering hospitals I can record that many persons who are well able to pay at least proportionate or intermediate fees, seek public hospital treatment as a right and this attitude is to my mind as much a matter for regret as the action of those who try imposition. It may be asked why the authorities controlling hospitals permit such persons to be admitted and treated! But what else can be done failing fair alternative? And so the whole blunder goes on and increasing numbers of people have become so accustomed to this improper "right" that the advocates of nationalization of hospitals find increasing support for their proposals.

Apart from any spirit of fairness to the medical profession, a spoon-fed people means a weak people and it behoves everyone to cooperate in stimulating individual independence and to place the hospital system on such a basis that there will be a fair deal all round.

It should be possible to evolve a scheme whereunder the hospital requirements of the whole population may be adequately met, the independence of the community conserved and the medical profession released from what is really an imposition. In outlining the following suggestions for consideration, a financial classification is the first essential and for hospital purposes the community may be regarded under four divisions: private, intermediate, third, public or free.

Private patients call for no detailed comment.

Intermediate patients are those who, whilst unable to pay full fees, are not in such a position as warrants their accepting any form of public relief. It appears practically impossible to set down any definite income limit for this class, as circumstances other than income vary considerably and might quite readily put two persons with similar incomes into different classes. Each person seeking intermediate treatment should be judged on the merits of his circumstances and in this matter the responsibility is to some extent placed on the private practitioner. Intermediate hospitals are now beyond the experimental stage and are working satisfactorily, the outstanding needs being for greatly increased facilities and accommodation.

Third class is placed between the intermediate and public or free and includes those wage earners and small salaried people who under present conditions pay maintenance fees to public hospitals varying from 10s. to £2 10s. per week.

Public or free are the indigent for whom the public hospitals are provided, who are unable to contribute anything for maintenance or attention, and to whom the medical profession can be expected to continue to give cheerfully their best services.

All hospital needs may be met in a community hospital system such as has been adopted with success in America, but I am of opinion that before such a system could be carried into effect in Australasia, there are so many factors to be dealt with

and so many vested interests to be considered, that many years must elapse before any appreciable results would accrue. For this reason the introduction of some measure of reform which may be put into effect at once, is recommended and as a further development the community hospital system could be adopted at a later date.

The suggested proposals for immediate application are as follows.

Private Accommodation.

The private accommodation should be independent hospitals as at present except in those centres where population and resources are distinctly limited. In the latter case provision could be made in existing public hospitals. The capital expenditure in each instance would be financed by private capital either individual or collective and the units maintained by patients' fees. Incidentally, however, it should be remarked that the standard of private hospitals generally is much below that of public hospitals and this raises a subject for consideration in regard to registration and standardization of all such hospitals, but this does not appear to come within the scope of this paper.

Intermediate Accommodation.

In large cities where population and resources warrant, intermediate accommodation should be provided in independent hospitals managed and controlled by church organizations, insurance companies or any body or corporation approved by the controlling authorities. In smaller centres this accommodation should be placed in the wings, wards or parts of public hospitals.

These intermediate beds shall be self-supporting as to maintenance, and capital finance should be provided as suggested above for private hospitals, but with probably some assistance from the Government in the nature of long loans on, say, a *credit foncier* basis.

It may be that the proprietors of some private hospitals will be prepared to set apart some accommodation for intermediate patients.

Third Class Hospitals.

Third class hospitals should be considered in relation to the public hospitals. It is too much to expect the introduction of any acceptable policy in regard to sickness insurance with institutional treatment in the near future and therefore pending such a measure patients under this class must be treated in public hospitals and must be expected to continue to contribute according to their means, with an agreed proportion of all such payments made available for the attending medical officers. If or when a national insurance (sickness) proposal with institutional treatment is adopted, the financial arrangements will be relatively the same. As such contributions do not nearly cover the full cost of maintenance, the institution should receive the major part of such payments for general purpose.

Medical Staff Arrangements.

In regard to the medical staffs for private hospitals there is and can be no limitation of attendance by any reputable practitioner.

Description of Patients.	Classification.	Where Accommodated.	Medical Staff.
Persons able to pay full fees for hospital accommodation and medical treatment.	Private.	Private hospitals; in smaller centres private wards in public hospitals.	Any reputable practitioner may give treatment.
Persons unable to pay full fees, but not financially suitable to receive public relief.	Intermediate.	Independent intermediate hospitals; wards in private hospitals; wards in public hospitals.	For this purpose class as private patients with such limited charges as are endorsed.
Persons unable to pay intermediate fees, but not financially suitable to receive charitable relief.	At present third class. Later insured class.	Public hospitals with no differential treatment.	The honorary medical staff of the institution.
Those in indigent circumstances.	Public.	Public hospitals.	The honorary medical staff of the institution.

At the intermediate hospitals the arrangements should be similar to those at private hospitals. The patient should have free choice of doctor, the fees being a matter of arrangement between doctor and patient or according to an approved scale.

If community hospitals are provided, the position in the private and intermediate wards will be the same as obtains at present in private and independent intermediate hospitals.

The advantages of some regulation or control of the professional work done in such hospitals have been clearly recognized in America under the scheme for grading hospitals carried out by the American College of Surgeons. It appears to the lay mind a desirable move in the interests of the patients, but I leave the discussion of this aspect of the problem to those better qualified to see its advantages and difficulties.

At the third class hospitals whether the patients are dealt with as suggested above or as insured patients, they should be under the care of the elected staffs.

Amongst other reasons these patients under the care of the honorary staffs of the large teaching hospitals would be available for the teaching and training carried out in the clinical school.

The arrangements for the public or free class should be as at present by elected staffs at the hospitals.

A summary of the foregoing is shown in the table.

A scheme under which all classes in the community might have adequate hospital accommodation and treatment according to their respective means having been outlined, it becomes necessary to review the policy of hospitals themselves.

Preventive medicine is largely education. Such matters as general sanitation, purity of water supply and the notification of infectious diseases are subjects of government or municipal regulation. The education of the public, however, in matters of preventive medicine as they affect each individual in the community, must be carried out by the medical profession. In this work the medical officers of public health departments, the teaching staffs of hospitals and the private practitioner all have their place.

So that while it may be regarded as primarily a State liability, this is not any reason why the members of the medical profession should not co-operate in their private capacities with the hospitals to obtain the best possible results both as part of a national social service and for mutual gain.

Assuming that all practitioners are desirous of cooperating in an approved plan and that they will by suggestion and education induce their own immediate public to take advantage of facilities which are made available, how then can the hospitals further such a scheme?

Any hospital which derives its income in whole or in part from government or municipal grants or from private contributions, should as a condition of such grants or contributions be required to provide and maintain such units as are necessary for the carrying out of the work.

It would be impracticable to attach complete departments, plant and equipment to every hospital, large and small, but it could be insured that reasonable facilities were available for every person to obtain and for every practitioner to give such examination, advice and treatment as are necessary both for preventive and curative purposes.

There would be no justification for installing the plant and equipment of a large metropolitan general hospital in a country cottage hospital, but certain preventive units could be graded from maximum to minimum requirements.

If a standard is to be set for a maximum preventive unit, I suggest that in addition to the accepted general, special and scientific subdepartments there should be certain other departments.

A tuberculosis department should exist, working in closest association with and really being part of the State health activities. The practitioner having access to such a department, would have complete facilities for diagnosing the condition and be enabled to simplify the drafting of patients to such treatment places as are indicated. At the same time each practitioner should strive to educate the patients (especially breadwinners) to a realization of the fact that a short period of scientific treatment, if taken early, is a very small premium to pay for assured recovery.

There should be a department for overhaul. Many people who now seek medical advice only when feeling ill, would given proper conditions take advantage of periodical medical examination and such a department may be of material service not only in the correction of incipient conditions, but also in the training of medical students and nurses. The overhauling physician would be helped in having the whole of the resources of institution at his service. Such an installation could be in effect an intermediate out-patients' unit if combined with a public hospital.

An auxiliary and convalescent unit should be organized apart from the general hospital in order that patients may be under observation and receive proper care until they are fully able to resume their occupations. It may be that some conditions in later life are attributable to lack of a satisfactory period of convalescence after illness.

Facilities should be provided for the outside practitioner to enter the laboratory and pursue any line of investigation which he desires, having at the same time the benefit of the advice and assistance of the hospital laboratory staff.

Cooperation between the outside practitioners and hospital staffs is essential. Recommendations for admission, as forwarded by many private doctors, are frequently crude and hopelessly incomplete. No history of any material value is sent along for the guidance or assistance of the hospital staff. How infrequently does an outside practitioner after a patient has been discharged from the hospital and again comes under his care, make inquiries as to what course was followed and what treatment was given in the institution. Alternatively, how many times do the hospital authorities forward a note to the private practitioner advising that there is a possibility of a certain condition arising later which, if symptoms are noted and prompt treatment given, may be prevented. Whilst I do not suggest that a full history should be sent in with every patient or that the private doctor should be forwarded a *résumé* as a routine, I am impressed with the idea that such a custom followed with judgement would result in a benefit to the patient, his doctor and the hospital staff.

A social service department is useful as a means of insuring that dependants on hospital patients will suffer no distress whilst the bread-winner is in hospital, of giving the most complete after care treatment needed and of defending when necessary the hospital from abuse by those who are able to pay in one or other class for treatment.

More frequent post-graduate assemblies should be held wherein the subjects would be ordinary rather than special.

There should be uniformity in the keeping of records in all States and all hospitals together with agreement as to nomenclature of diseases; this should be backed by a free interchange of histories and records when desired.

Further, in the larger centres of population, independent units might be established at strategic points embracing medical and surgical clinics for minor conditions with a diagnostic X ray plant and a small laboratory, a visiting nurses' dépôt, an ante-natal clinic, a baby health centre and a complete dental unit working in part at night to enable those people who are in employment, to obtain attention without losing working hours. This is to afford a greater measure of conservative treatment.

These establishments being in effect complete out-patients departments, in addition to the value of the work done therein, would considerably minimize the evergrowing demands on and consequent congestion at the general hospitals.

It will be noted that several of the proposed activities are administered by different government departments and that consequently having regard to the functions of each as well as to the cost of maintenance coordination of effort will be essential. So far from this being any reason against the proposal, it is probably a strengthening of the suggestion, as it will be a step in the direction of amalgamation of all preventive and curative activities.

I have naturally refrained from touching on the technical side of treatment and prevention and venture to express the hope that a stable relationship between the doctor and the hospital will be established, that the hospitals will be standardized to meet all preventive as well as curative requirements and that all members of the profession will take full advantage of the facilities provided and thus materially assist in a vigorous policy of prevention.

In conclusion I urge active cooperation towards attaining an ideal in which the skilled practitioner must play a leading part, bearing in mind that many of these preventive agencies must be regarded not as charitable institutions, for the springs of charity will not flow so copiously to prevent as they will to alleviate distress, but as educational institutions established and maintained by the State as part of its duty to keep the working efficiency of its component individuals at the highest possible level.

NATIONAL INSURANCE AS A MEANS OF EFFECTING COOPERATION OF MEDICAL PRACTITIONERS WITH DEPARTMENTS OF HEALTH IN THE PREVENTION OF DISEASE.

By T. McKIBBIN, C.B.E., M.B., D.P.H.

Director of the Division of Public Hygiene, Department of Health, Wellington, New Zealand.

PAPERS have been prepared in this and in other sections dealing with the public health nurse, her place in prevention and the relationship of medical practitioners to hospitals particularly in respect of the prevention of disease.

This paper is an attempt to prove that it is expedient for general medical practitioners in New Zealand and possibly throughout Australasia to encourage the compulsory national insurance of all persons in receipt of low incomes in order to prevent disease. The opinions I express are solely personal. I suggest that £400 *per annum* is a suitable maximum for New Zealand.

From the standpoint of the general medical practitioner it may be said that in the United States of America some branches of the medical profession prosper, so that they have been able to found and maintain such expensive institutions as the American College of Surgeons which has done much to reform American hospitals and in England since 1911 national insurance has increased the emolument of very many general practitioners and enabled them to undertake preventive and statistical work in cooperation with the Ministry of Health. In New Zealand on the other hand the establishment and use of public hospitals has been such that in

the last fourteen years the proportion of the general public using them annually has increased from 24 to 46 per thousand of population and briefly the majority of New Zealand practitioners cannot afford to devote much time and effort to disease prevention.

I agree that New Zealand practitioners do prevent disease. I think, however, it should be the main objective of general practitioners both in town and country and suggest it will pay the New Zealand public to offer more inducement to general practitioners to enter whole heartedly into this branch of our profession.

Admitting the value of good hospitals it is perhaps the prerogative of one whose official duty is hygiene and disease prevention, to draw attention to certain disadvantages of hospital treatment. In order effectively to prevent disease a general practitioner or a health visitor (public health nurse) must closely observe the home and working environment of the people. There are only ten medical officers of health in New Zealand; the area of the districts they administer is therefore huge. Their duties are many and varied and include much office administration. There are still fewer public health nurses who are widely trained in disease prevention in all its aspects; and whose duties are comprehensive. When we consider disease in relation to whole families and its causation, heredity, the home, school and work place environment including the recognized ways in which infectious diseases are spread, it is obvious that although disease can in considerable measure be prevented by education of the whole public, regular guidance of many families is needed from one who has had experience of disease and knows its causes and also knows intimately the family, its heredity and whole environment.

The sanitary inspectors of New Zealand, though the training given them has been limited, have done a great deal of preventive work. They are important agents in improving the people's environment in New Zealand, but we know that however zealous and tactful they may be, sanitary inspectors have their limitations. For example, personal and domestic hygiene and the personal factor in the spread of infectious diseases do not receive the supervision they should in the home itself. The average sanitary inspector cannot advise parents in personal and domestic affairs. A medical practitioner can and no doubt a nurse in uniform, had she a wide enough knowledge, could make her influence felt.

There are on the other hand 1,211 registered medical practitioners in New Zealand and probably one third of these could be utilized in definite disease prevention.

We all, medical practitioner, State official and the general public, have taken a hand in advocating hospitals in New Zealand and the annual expenditure from the public funds on public hospitals which are mainly curative agencies, has risen in the last fourteen years from 5s. to 12s. 10d. per head of population.

It will be better for the New Zealand public and still leave ample provision for patients who are acutely ill, or require operation, if expen-

diture for the provision of additional beds be checked for several years to come. Economy also could be effected by increasing the out-patient treatments at all the public hospitals and reducing the occupied bed state. Last year 63,068 persons were treated as in-patients and about half that number, namely, 39,796, as out-patients.

In Australia not to mention England the proportion of out-patient treatments to in-patient is very much higher than in New Zealand. Since the average annual cost per occupied bed is £191 12s. the scope for economy in this way will be apparent.

Another even more important fact is that the more practitioners treat their patients in hospital, the less opportunity they have to see their usual environment or to make a close study of their patients' forebears. It is natural and proper for people to appeal to a family doctor for family advice. In the absence of the real family doctor, the chiropractor and food faddist hold sway or vague generalizations from some pamphlet or the public press are applied to particular families.

A demand is arising for public health nurses and for an extension of public hospital activities to include the prevention of disease such as by following up discharged patients and entering their homes in order not only to confirm the cure and prevent a recurrence, but generally to reduce disease and the demand for public hospital accommodation.

Are medical practitioners disposed to let such matters shape themselves? I hold that the cooperation of general medical practitioners is of primary importance in this work.

Trial has been made in England and elsewhere of appointing medical practitioners part-time medical officers of health. It has failed wherever tried. One probable reason for that failure was that a practitioner's obligations to a private patient tend to conflict with his public duty. Nationalization of a section of the medical profession has been mentioned, but is unacceptable to most British people, be they practitioners or laymen. Nevertheless, stipendiary appointments to public hospitals is a form of nationalization of the profession and with regard to the treatment of disease an increasing number and proportion of the medical profession in New Zealand is receiving whole time salaries from the hospital boards and the Government pound for pound. Last year, for example, there were 151 practitioners holding stipendiary appointments in public hospitals. If hospital boards engage definitely in the prevention of disease, precedent indicates that for this work also whole-time salaries will be paid. Perhaps the public health nurse will be the principal agent thus employed in disease prevention, but guidance from experienced medical practitioners is highly desirable. Much depends upon the attitude of medical practitioners in respect of this important extension of hospital practice.

In the ordinary course a private practitioner in New Zealand is paid for piece work as when he performs an operation or on a time basis when he is consulted. Many, however, accept contract practice with friendly societies which in plain language amounts or should amount to his undertaking to

try to maintain the health of his club members and a large proportion of the profession work in the public hospitals either on stipend or in an honorary capacity.

Let us consider contract and hospital practice in New Zealand in relation to the public bodies and the practising profession.

First as regards friendly societies the members are the thrifty people. The improvident who do not join a friendly society, remain a burden in time of sickness upon hospital boards and the Government and upon medical practitioners. National insurance for medical treatment and the sustenance of invalids on the other hand which has been in operation for many years in England, France, Germany, Austria, Holland, Norway, Japan and many other countries, means that automatically whenever a man or woman receives wages amounting in the aggregate to no more than a stated maximum each week, something is deducted from that wage to treat the sick and sustain the invalids. Members may choose their doctor, so competition is not done away with and the controlling authorities are the national insurance committees not the elect of subscribing members. It obviously pays a panel practitioner to endeavour to maintain the health of his insured clients which would comprise a portion only of his patients.

By the recent amendment of the *Hospital and Charitable Aid Act* of New Zealand hospital boards are charged with the duty of providing medical and nursing treatment for indigent persons throughout their districts. Possibly if a national insurance act were passed in New Zealand the hospital boards would be represented on the national insurance committees and their existing administrative machinery would be used in the putting of the law in practice. There are forty-six of them evenly distributed throughout the Dominion. The first duty of a hospital board in New Zealand is to provide institutional treatment for the indigent sick. A board is also responsible, as I have said, for providing medical and nursing treatment for indigent persons in any portion of its district. It would seem logical and expedient for such a board to promote insurance against sickness and to endeavour to prevent the illness of persons in receipt of low salaries who when invalidated are likely to become a charge upon their hospital and their charitable aid accounts. Surely, too, from the medical practitioner's standpoint it is better to receive regular insurance payments for maintaining the health of insured persons than at a later date to share a burden of loss with the public bodies brought about by our failure to insure.

I personally am an advocate of national insurance. I believe it would engender thrift and independence in the persons insured, lessen the financial burden of the public bodies concerned in medical treatment and nursing, improve the lot of the majority of general medical practitioners and definitely improve the public health.

I should like to see not only a *cordiale entente*, but a definite alliance of general medical practitioners with the Department of Health and the

local governing authorities for the purpose of disease prevention and believe that the only known sound and fair way of reaching that objective is by national insurance.

It was introduced in Germany in 1883, Austria in 1888, Hungary in 1891, France in 1894, Norway in 1909, Serbia in 1910, Great Britain and Russia in 1911, Roumania in 1912, Holland in 1913, Portugal in 1919, Greece and Japan in 1922 and is in force in several other countries.

I suggest the profession here should consider national insurance and declare its policy. Even should they support it in principle, the experience of other countries has been that afterwards friendly societies, chemists and other interested parties have to be reckoned with and protracted negotiations have to be entered into before such a measure can be placed upon the statute book.

DR. HARVEY SUTTON (Sydney) thought that Dr. Morris was pessimistic in his views concerning the interest the general practitioner and medical student took in preventive medicine. The general practitioner was in the front line in the national campaign of disease prevention. Preventive medicine was occupying a more prominent place in the medical curriculum and in the forefront of that teaching was upheld the value of the human factor in disease prevention. Public health had become more personal in its application; it dealt more directly with the individual and as a result a greater interest was being taken in this phase of medicine. Students, medical practitioners and nurses of the very best type and with the highest qualifications were turning their thoughts to prevention and there were many applicants for public health vacancies.

In the great war emphasis had been placed on prevention; lessons learned in war time had not been forgotten and preventive medicine had remained in the forefront. The public believed in surgery as a specialty only and were asking that specialists should restrict their practice exclusively to that calling. The people were beginning to realize that the real attack on disease lay in prevention rather than cure. Annual examinations and overhaul were instituted in schools and were coming more and more into general favour with adults. An annual thorough overhaul to detect disease in its incipience was an immediate practical proposal and an advisable measure.

Dr. Sutton thought that if New Zealand utilized ten medical officers of health in her organization Australia in respect of her size and population should be employing more than she was at present. In the large Australian towns and cities the campaign against disease was well conducted and the hospitals efficient and well run, but in the country districts improvement was badly needed. Their hospitals were poorly conducted, especially the children's departments. He called attention to the conditions at one hospital with an ophthalmic department at which refraction work was not undertaken. In the campaign against disease in war time prevention became all-important. Surely in peace time it was as urgently in need of emphasis. If more peace time energies were directed into the channel of preventive medicine, the public would be better off.

DR. S. A. MOORE (Dunedin) agreed with Dr. Harvey Sutton that the attitude of practitioners towards preventive medicine was a live one. They were not as indifferent as Dr. Morris thought. A live interest did not adversely affect the practitioner's living, rather the opposite. Certainly the standard of health would be raised. In New Zealand there was one form of medical treatment undertaken by the State in which the cooperation of the community in the State effort was urgently needed. It was the mental hospital service which lacked voluntary workers and contributions. It was claimed that the New Zealand hospital system was successful by virtue of the inclusion of voluntary effort and finance.

In regard to preventive work Dr. Moore agreed that periodic examination was well worth while. He thought

that after patients left hospital they should be more closely followed up. There should be a branch of service visiting the homes to discover why people had fallen ill. The increased hospital attendance by the people had resulted in less home visitation. The general practitioner should endeavour to get back into the home and study the environment. The clinician had started preventive medicine; the public health expert should have to come to the practitioner for help in preventive medicine and not *vice versa*. By getting back into the homes the practitioner would again take his rightful place.

Disease was capable of classification into two groups, the biologically old, to which resistance had been evolved and the biologically new towards which resistance was still undeveloped. The biologically new would be prevented by discovery of the virus. The biologically old might be prevented by further study of the soil in which the virus had thrived. Rules of hygiene were of great importance and more must be known of the fundamental principles of diet.

Dr. Newman Morris in reply did not wish to be pessimistic, but maintained that the preventive aspect of medicine did not pervade the medical course as it should. He referred to the reports of the General Medical Council and others upon the need for reform in this matter.

He admitted that periodical examinations were being carried out upon children by paid school medical officers, but held that this work should be done by general practitioners and might well be restored to them.

Legislation was being proposed and might shortly be passed in Australia linking up general practitioners more closely with the Public Health Department. Dr. Morris advised the practitioners to guide this movement and to take a lead therein, otherwise their future closer cooperation might prove irksome.

General Meeting.

THURSDAY MORNING, FEBRUARY 10, 1927.

A general meeting was held in the Allan Hall, University of Otago, on the morning of Thursday, February 10, 1927, Dr. L. E. Barnett, the President, in the chair. There were forty-nine members present.

Dr. L. E. BARNETT said that the meeting was the final meeting of the second session of the Australasian Medical Congress (British Medical Association). It was not actually essential to hold this meeting, but they had considered it advisable in conformity with a kind of tradition. He explained to the members that the meeting had no power to adopt resolutions such as had been passed at the old Australasian Medical Congresses. The Congress was held under the aegis of the Federal Committee of the British Medical Association in Australia. All the resolutions which had been adopted in the Sections, would be remitted to the Executive Committee and thence to the Federal Committee. The meeting would be of an informative character and opinions expressed would be used to guide the members of the Federal Committee in arriving at their decisions. Before calling upon the Honorary General Secretary to read the resolutions adopted in the Sections, he announced that he had received a cable from the South African Medical Association conveying fraternal greetings to the Congress.

PROFESSOR W. P. GOWLAND, Honorary General Secretary, read the following resolutions.

From the Combined Meeting of the Sections of Surgery, of Radiology and of Pathology and Bacteriology.

That legislation should be introduced in Australia to make hydatid disease notifiable and that there should be stricter attention paid to notification in New Zealand.

That there should be greater control of slaughter houses, especially in regard to the boiling of offal and the exclusion of dogs. Public propaganda should be promulgated as much as possible. On registration of dogs full information should be given as to the importance and prevalence of the disease and the mode of infection. The importance of vermifuges should be made clear especially to those of the farming community.

From the Section of Pathology and Bacteriology.

That it be recommended to the governing bodies of those Universities of Australia which have medical schools, that chairs of bacteriology to include immunology would further medical research, medical education and the public health.

From the Section of Naval and Military Medicine and Surgery.

1. That the medical tactical exercise (staff ride) be continued in subsequent sessions of the Australasian Medical Congress (British Medical Association).

2. That at future sessions of the Australasian Medical Congress (British Medical Association) the papers presented at the Section of Naval and Military Medicine and Surgery should be diminished in number in order to permit members to attend the meetings of the other sections.

3. That Lieutenant-General Sir H. J. C. Goodwin be congratulated on his elevation to the rank of Governor of Queensland.

From the Section of Ophthalmology.

That this meeting is of opinion that since a medical and special training is required:

(i.) It is not in the public interest to register and recognize sight testing or consulting opticians as such;

(ii.) There is no objection to registration of dispensing opticians and the medical profession would cooperate with the opticians to promote scientific training and registration of such.

From the Section of Neurology.

1. That the Section of Neurology and Psychiatry of the Australasian Medical Congress (British Medical Association) recommends Congress to approve of the formation of separate Australian and New Zealand councils for mental hygiene on lines similar to the British Council for Mental Hygiene, having the following objects:

(i.) To work for the conservation of mental hygiene; to promote the study of and to obtain and disseminate reliable data concerning the causation and prevention of mental disorders, defects and disturbances,

(ii.) To encourage, correlate and organize means of communication between societies, associations and other bodies interested in or concerned with mental hygiene,

(iii.) To cooperate with societies, associations or other bodies interested in or concerned with mental hygiene and to promote an international league of national councils for combined action and interchange of knowledge concerning mental hygiene,

(iv.) To further the establishment of special clinics for the early treatment of mental disorders and generally to work towards effecting improvements in the conditions of treatment of mental disorders and defects in whatsoever way the Association shall determine.

2. That the President of the Congress be asked to nominate an organizing committee for Australia and an organizing committee for New Zealand which will have power to draft constitutions for the respective mental hygiene councils, and to take the necessary steps to have the councils duly established.

3. That the diagnosis, educational and other treatment of mental defectives and the activities in this regard of non-medical psychologists and of teachers should be under medical psychiatric control.

From the Section of Preventive Medicine.

1. The Committee set up by the Section of Preventive Medicine to consider the work and training of the public health nurse have met and suggest that Congress pass resolutions to the effect:

(i.) That a fully qualified and properly trained nurse is an important link in the public health machine,

(ii.) That the public health nurse in addition to her ordinary nursing and midwifery qualifications should be the possessor of a certificate for post-graduate study in public health nursing,

- (iii.) That from the point of view of status and training it is desirable that this course of instruction should be given at the University medical school.
- (iv.) That for these reasons this Committee recommends the respective Governments of Australia and New Zealand to inaugurate such schemes for the training of public health nurses.
2. The Committee set up by Congress to advise as to any recommendations to legislature with regard to the prevention of goitre have met and their considered opinion is that Congress should pass the following resolutions to the following effect:

- (i.) That a recommendation to the Government of New Zealand that on account of the undisputable evidence as to the undue incidence of goitre in New Zealand as a whole and more particularly in certain areas, active propaganda should be undertaken by the Department of Health, in cooperation with the medical profession, with a view to increasing the use of all purposes of iodized salt standardized according to Regulation 51-4 of the Regulations of the *Sale of Food and Drugs Act*.
- (ii.) That the attention of the medical profession be drawn to the unmistakable increase in toxic goitre in New Zealand, as shown both by returns of death and admissions to hospital and that emphasis be laid on the need for conservation in the therapeutic use of iodine for the treatment of simple goitre in adults.
- (iii.) That owing to the grave dangers attending the use of large quantities of iodine in goitrous districts, it is a recommendation to the Government of New Zealand that the sale of so-called goitre remedies should be illegal, save by chemists on the prescription of a doctor.

DR. L. E. BARNETT asked the members present to make comments in order that when the Executive Committee, the Federal Committee and the several bodies to which these resolutions might be sent, considered the matters, the opinions expressed at that meeting might also be taken into account. There was no response to Dr. Barnett's invitation.

PROFESSOR W. P. GOWLAND asked the meeting to consider the question of the title of the Congress. The Dunedin Chamber of Commerce had for many years adopted the view that the term Australasian was objectionable and should be replaced by the terms New Zealand and Australia. As a result of their activities many New Zealand institutions had adopted the alteration. In particular the Australasian section of the London Chamber of Commerce had altered its title to the section for Australia and New Zealand. It was argued that the identity of New Zealand is almost entirely lost in the term Australasia. The Chamber of Commerce suggested that Congress should consider the advisability of altering its name. In conclusion the writer of the letter offered the congratulations of the Chamber of Commerce on the occasion of the meeting of Congress in the city of Dunedin.

DR. L. E. BARNETT expressed the opinion that from a commercial point of view there was excellent reason to keep New Zealand and Australia separate in fact and in terminology. The use of the term Australasia in commerce had had the effect of leaving New Zealand out in the cold. It was a different matter, however, in regard to a scientific body. Science knew no nations and no boundaries; they as scientists aimed at the closest possible cooperation. There was a very friendly feeling existing throughout the Commonwealth and the Dominion and for this reason he did not think it wise to make any change. He asked those present to express their opinions in order that the Executive Committee might have guidance.

PROFESSOR A. M. DRENNAN recalled the original name of the Medical Congress, the Intercolonial Medical Congress, and asked whether there was any valid reason why recourse should not again be had to this name.

DR. A. JEFFERIS TURNER stated that this was a matter for the New Zealand members, it did not concern the Australian members; he thought that it might be left to the Executive Committee to consider and to take any action that was thought necessary.

DR. J. NEWMAN MORRIS reminded the members that the constitution of the Congress was in the hands of the Federal Committee and moved that this matter should be referred to the Federal Committee for consideration and action.

DR. F. R. RILEY hoped that others would express their opinion as to the desirability or otherwise of retaining the present name of Congress. He would not like to see it altered.

DR. W. B. MERCER seconded Dr. Newman Morris's motion.

DR. F. S. BATCHELOR held that it would be better to alter the name from Australasian to something else. He found that Australian and New Zealand would render the title too long and clumsy.

DR. J. A. POTTINGER considered it would be unwise to refer the matter to an Australian committee. New Zealanders were the only aggrieved parties. He did not think that the old title Intercolonial could be resurrected, it was as dead as mutton and no longer had any significance.

PROFESSOR A. M. DRENNAN moved as an amendment that the matter be referred to the Executive Committee of Congress. If the Executive Committee decided to recommend an alteration in the name of Congress, the matter could be referred to the Federal Committee.

DR. D. W. CARMALT JONES, in seconding the amendment, said that the opinions expressed at that meeting should not be regarded as of sufficient importance to be a guide to the Executive Committee because the meeting was not large enough.

DR. NEWMAN MORRIS stated that he was prepared to withdraw his motion, but Dr. Mercer disagreed.

DR. R. H. TODD pointed out that the difficulty of the meeting was merely a matter of procedure. The Federal Committee acted on behalf of the Branches of the British Medical Association and when any matter concerned one Branch, the Committee would certainly refer it to that Branch. He thought that this question was one for the New Zealand Branch of the British Medical Association to decide. The New Zealand Branch could handle it properly and in a perfectly constitutional manner. He recognized, however, that the Executive Committee actually represented the New Zealand Branch and it would therefore have the same effect if the matter were referred to the Executive Committee of Congress as if it were referred to the Council of the Branch.

The amendment was put to the meeting and carried and was also carried as a substantive motion.

The Finances of Congress.

DR. L. E. BARNETT called upon Dr. Carmalt Jones to lay before the meeting some proposals that he had to make in regard to the financial arrangements for sessions of Congress.

DR. D. W. CARMALT JONES said that the finance of the present Congress had been a matter of grave anxiety to those concerned. Very moderate estimates had been made, the lowest which could possibly be held to cover expenses, but it had been only within the last few weeks that these estimates had been reached. Had they not been reached, it would have been necessary to resort to special appeals, levies and the like, which were unpleasant for all parties. It appeared that this could be obviated by a very simple and unburdensome procedure.

The State or Dominion which accepted the responsibility for the next or for any future Congress, would do so only on one condition, namely, that all members of the British Medical Association in the State should become members of Congress. This would have to be agreed to by a majority of a meeting of properly instructed delegates called for the purpose. Thus the Branch of the British Medical Association of the State, not a number of independent members thereof, would undertake the Congress. If a majority vote in this direction was not obtained, the Congress would not be held by that State.

When a State agreed in this way to hold the Congress, a sum of three guineas would be charged to all members of the Branch. This would be distributed over three years, by the addition of one guinea *per annum* to the annual subscription for that period.

Two guineas would cover membership of the Congress and would go to the ordinary Congress fund; this would

secure adequate funds for the Congress and would permit the Executive Committee to make arrangements in accordance with a settled budget. One guinea would go to an entertainment fund; the establishment of such a fund would be at the discretion of the Branch.

If this arrangement were adopted, the value of the Congress could be enhanced in the following direction. Considerably more money would be paid in than would be required for the needs of the actual meetings and a sum would be available to provide the finance for research into subjects of interest to future sessions of Congress.

A plan might be adopted to distribute the four days of session broadly: One day to be given to a subject of special interest to the State holding the Congress, one day to be given to a subject of special interest to Australia, one day to a subject of general interest, one day to the presentation of independent new work. The available money could be expended in research on any subject which might be selected out of these alternatives. In this connexion it would be advantageous to select the State to hold the Congress six years in advance. If this had been agreed upon, the place of meeting for 1930 would have been selected at Melbourne at the end of 1923 and that for 1933 would be selected at the Dunedin meeting. The reason for this was that the period of three years was insufficient for the selection and completion of any important piece of research.

A concrete instance of what was suggested, was that if this scheme had been started at the Melbourne Congress, the venue for 1930 would have been selected in 1923, they might suppose in some imaginary North Australian State, North Australia would have been "warned" for a Congress in 1930. During the first three years, under fairly constant pressure from the Federal Council, North Australia would have considered its problems and decided that malaria was its chief menace. It would have decided that the entomology, protozoology and drainage required investigation and it would have made arrangements with experts to undertake the work. It would produce concrete proposals at that session of Congress, at which the available money would be voted to it and a report on the work done would have to be presented at the next meeting.

There were, of course, many alternatives to this disposal of the money according to the amount available; it might be decided to import experts to address the next Congress or to elect scholars for research locally or abroad and so forth.

There were about eleven hundred members of the Victorian Branch; universal membership would have brought in about £2,250. The Congress cost about £2,000 and there would have been available all the subscriptions of members from other States; probably at least £1,000 would have been available for research.

There were two quite separate proposals contained in these suggestions: (i.) That the finance of future sessions of Congress be assured by the acceptance of membership by all members of the British Medical Association of the Branch concerned; (ii.) that the surplus funds be devoted to research on some subject which the State concerned would have three years to select and three years to execute.

The Visitors.

In response to an invitation from the President, Dr. COOPER PATTIN said that he was greatly indebted to Dr. Barnett for having given him the opportunity of addressing the meeting on behalf of the visitors. This privilege had come to him because he had travelled the longest distance to attend the Congress. He referred to the magnificent hospitality which had been extended to them by their Dunedin colleagues. It had been a delightful experience. Some years ago Dr. Dawson Hill had told him that if he did not live in England, he would prefer to live in New Zealand and Dr. Cooper Pattin agreed with Dr. Dawson Hill. Although he was a bachelor, he did not hesitate to extend his expressions of thanks to the ladies who had entertained the lady visitors in a most charming and lavish manner. He wished to congratulate the members of the Executive Committee on the very efficient manner in which

they had conducted and arranged the meetings. He spoke enthusiastically of the urbanity and charm of the President and of the extraordinary ability of the Honorary General Secretary. When he returned to England he would suggest to the British Medical Association that they should create the position of a permanent peripatetic delegate to congresses and that they should appoint him to that position.

Dr. L. E. BARNETT thanked Dr. Cooper Pattin for his kind expressions and for his appreciation. When he wrote to Dr. Alfred Cox, the Medical Secretary of the British Medical Association, he would not forget to inform him that the Australasian members of the Congress appreciated the quality of the representative who had been sent out to them. Dr. Barnett said that there were many votes of thanks that would have to be considered by the Executive Committee. He would not attempt to enumerate the individuals to whom they were so much indebted. He thought that the members would like to know that the list would be carefully prepared and an appreciative letter would be addressed to each one.

Very warm tributes were extended to Professor Gowland, Professor Drennan and Dr. Carmalt Jones. It was announced that the appreciation of the New Zealand members would take a tangible shape and that a souvenir would be presented to each of them in recognition of their magnificent services.

The Museum.

THE MUSEUM with the exception of the Public Health Section was housed in the Dissecting Room of the New Medical School and the admirable setting provided by this room allowed specimens to be displayed to the best advantage. The accompanying photographs give an excellent general impression of the main features.

The Committee realized that owing to difficulties of transport it would have to depend largely on New Zealand effort. However, Dr. A. N. McArthur, of Melbourne, brought a personal contribution of gynaecological interest, Professor J. Burton Cleland, of Adelaide, demonstrated a simple and cheap method of mounting specimens and Dr. C. H. Kellaway, of Melbourne, brought an exhibit of specimens illustrating the experimental investigation of streptococcal infections and showed a number of sections of multiple chordomata. Messrs. Hamblin and Company, of London, exhibited a valuable collection of ophthalmic drawings by Head and the British Medical Association sent out an exhibit of their various publications.

In addition to the standing display there were also demonstrations in connexion with the Section of Gynaecology and the Section of Neurology by Dr. H. H. Schlink and Dr. Oliver Latham respectively and one by Professor J. D. Malcolm, on vitamin deficiency in rats. To all the above and to the pathologists and members of the staffs of the Christchurch and Wellington Hospitals whose cooperation was invaluable, the Museum Committee takes this opportunity of expressing grateful thanks.

The Christchurch Hospital, through Dr. Pearson, the Pathologist, contributed an extensive collection of beautifully mounted specimens covering a wide field of medical and surgical pathology. Special mention should be made of a large series of suprenals from patients with Addison's disease and of numerous examples of renal and cerebral tumours.

Dr. P. Clennell Fenwick contributed from the Radiology Department of the Christchurch Hospital a large exhibit of casts and photographs illustrating the therapeutic effects of radium and X rays on malignant and other conditions of the skin.

The Wellington Hospital, through Dr. Lynch, the Pathologist, sent an exhibit of general interest, including a group of injuries and diseases of the spleen and a recurrent myeloid sarcoma of the humerus with pulmonary metastasis occurring in a patient with *osteitis fibrosa*.

Dr. A. N. McArthur, of Melbourne, exhibited a group of specimens illustrating the operative treatment of uterine hæmorrhage and kindly presented it to the Otago Medical School at the close of the Congress.

Messrs. Hamblin and Company, of London, loaned to the Congress a collection of the beautiful ophthalmic drawings by Head and arranged by Mr. Rayner Batten, illustrating external conditions of the eye and the rare fundus diseases. These drawings which were among those exhibited by Messrs. Hamblin and Company in London, excited general admiration and were a most attractive feature of the Museum.

Dr. A. J. Hall, of Dunedin, showed a group of specimens illustrating various eye conditions including a series of stereophotos and microscope slides prepared by John Marshall, Pathologist, Glasgow Eye Infirmary, illustrating the pathology of penetrating wounds of the eye ball.

The Facial and Jaw Department of the Dunedin Hospital, of which Dr. H. P. Pickerill is the Surgeon in Charge, displayed a considerable number of wax casts (140) of facial cases illustrating the various methods of plastic restoration involved in the treatment of gun-shot wounds with loss of portions of the face and of such lesions encountered in civilian practice as malignant and innocent neoplasms,

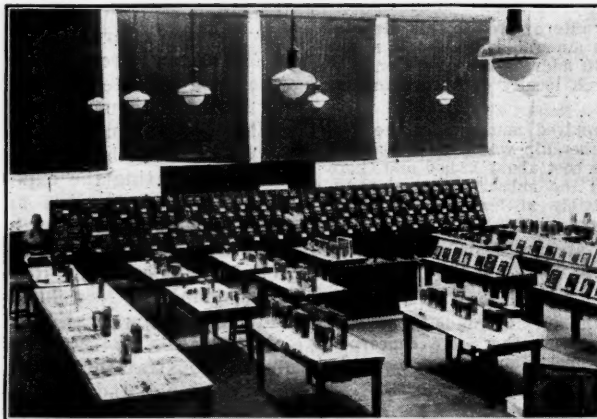
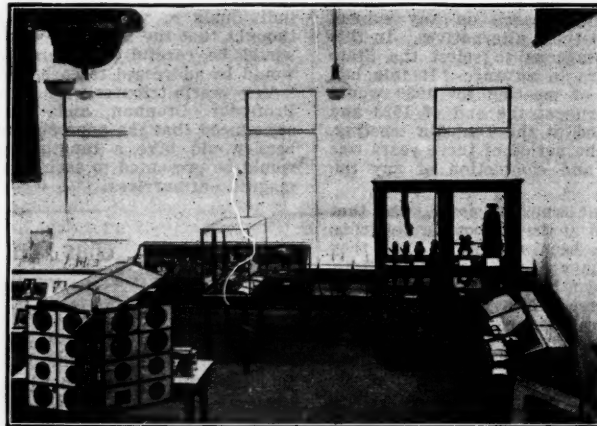
burns, syphilitic and traumatic losses involving the face and jaws. Several of the casts showed the improvement produced by cartilage grafting in patients with fractured and depressed noses.

On the reverse side of the stand were displayed and illuminated about five hundred lantern transparencies further illustrating a large number of similar cases including muscle grafting methods for facial paralysis, restoration of the lips after excision, arthroplasty of the temporo-mandibular joint and numerous harelip operations done by the

"triangular flap method." A new operation by "stirrup flap" for severe ectropion was shown, as also were cases of ectropion of the lower lip following burns in women and treated by tube grafts from the outer surface of the breast, thus avoiding any additional visible scar. A probably unique specimen here was a complete lower jaw, from condyle to condyle, removed from an old man suffering from "phossy jaw." The photographs showed the patient several years afterwards to be apparently in excellent health and with a normal shaped jaw.

It is safe to say that Dr. Pickerill's exhibit was one of which any Museum might be proud and the wax casts, the work of Mr. H. Kelsey, evoked universal admiration.

The Department of Anatomy, Otago University, exhibited a number of dissections and casts



including:

1. A dissection of the lymphatic chain by Dr. Morris Axford, of great interest from the point of view of cervical and lumbar ramification.

2. Various casts (the work of Mr. Kelsey) illustrating developmental and other points and dissections exemplifying surgical anatomy, such as the relation of the internal carotid to the tonsil and structures in relation to the parotid gland.

3. A large series of casts of dissections of the brain.

4. Casts of bone specimens in the Mouat case, illustrating medico-legal points concerning identification by bones of unique interest in certain directions.

The Department of Pathology, Otago University, exhibited a large number of specimens of general interest including a series of diverticula of the alimentary tract and various lesions of the brain and spinal cord. Mention should be made of Professor Drennan's specimens and photographs illustrating the pathology of goitre and also of his collection of brains displaying aneurysm of the smaller cerebral vessels.

The various exhibits from a case of generalized *osteitis fibrosa* associated with a hyperplastic nodule of probable parathyreoid nature and a myeloid sarcoma of the patella with metastasis in a popliteal gland were of special interest in view of the discussion on *osteitis fibrosa* and allied diseases.

The historical exhibit consists of the Proceedings and photographs of the Congress held in Dunedin in 1896.

THE PREVENTIVE MEDICINE MUSEUM.

CONSIDERABLE interest was displayed in the exhibits in the Preventive Medicine Museum. The more interesting of the exhibits were:

1. Hydatid exhibit.—An effort was made to demonstrate the life history of the *Tænia echinococcus* and the methods of conveyance to man. Numerous pathological specimens were displayed showing the effects of the parasite in the human body. In connexion with the life history in the dog several photomicrographs were exhibited showing: (a) adult *tænia in situ* in the intestine of the dog, (b) enlarged view of head of the *tænia* with hooklets, (c) enlarged view of terminal segment showing ova, (d) enlarged view displaying onchosphere in its capsule obtained from faeces. Other photomicrographs revealed the scolex with its hooklets. There was exhibited in natural size the adult worm as recovered from the bowel of the dog and in this connexion photomicrographs were shown indicating the similarity between the ova of *Tænia echinococcus* and those of *Tænia serrata* of the dog. The pathological specimens were representative of the various regions of the body. Dr. L. E. Barnett exhibited drawings and photographs of clinical cases.

Throughout the whole exhibit, special emphasis was laid upon the necessity and possibility of prevention of infection of dogs.

2. A relief map depicting the incidence of goitre in New Zealand, with special reference to the iodine content of the soil. In this connexion a geological key was provided, indicating the geological formations favouring a lack of iodine. This exhibit was a source of continued interest.

3. Vital statistics.—A series of graphs was exhibited showing the favourable position occupied by the Dominion of New Zealand as regards death rate, expectation of life and birth, infant mortality rate, tuberculosis death rate and so forth. Other histograms revealed interesting points in the epidemiology of acute anterior poliomyelitis in New Zealand and the 1918 influenza epidemic in New Zealand.

4. One of the most interesting features of this museum was that in which two excellent models were displayed, showing modern methods of rural sanitation as applied to country homes and the sanitary method of disposal of nightsoil for a small inland community where water carriage was not available.

5. A further exhibit consisted of a series of diagrams and plans illustrating the town-planning scheme as at present being carried out at Lower Hutt, Wellington.

6. There was an exhibit consisting of a series of photographs illustrating a health camp for school children as carried out by Dr. Elizabeth Gunn.

7. An exhibit of great interest was a demonstration of the process involved in

the preparation of pollen, epithelial and food extracts for diagnosis and treatment of hay fever and asthma by specific protein therapy.

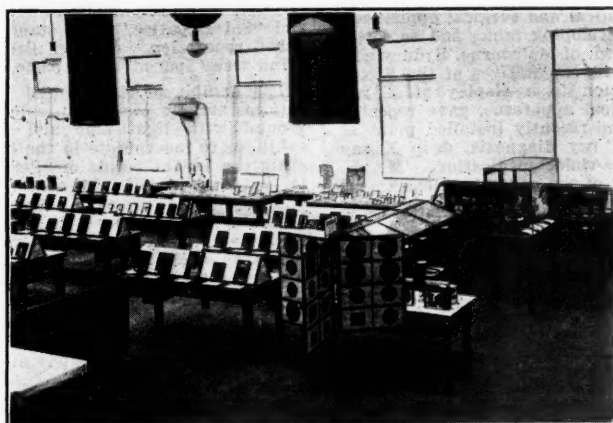
8. There was also placed on exhibition a series of monographs as presented by the fourth year medical students on subjects of preventive health and medical interest.

9. There was a series of plaster models and diagrams illustrating the various preventable developmental and postural defects of the body.

10. The detinning effects of the acid juices of the contents of food in tins was illustrated by means of an excellent exhibit. This was presented by Dr. Telford, of Christchurch.

The Trade Exhibition.

THE TRADE EXHIBITION was placed in a series of rooms situated close to the entrance of the Medical School. The exhibiting firms had an excellent opportunity of displaying their wares to good advantage. The following is a short description of the exhibits.



Surgical and Dental Instruments and X Ray Apparatus.

Martin and Company, of Sydney and Melbourne, surgical instrument manufacturers and importers, placed on view an extensive assortment of appliances and instruments. Included were the latest ear, nose and throat and genito-urinary specialties, abdominal retractors, manufactured by Martin and Company, with adjustable sliding bars.

The Dental and Medical Supply Company, Limited, of Auckland, Wellington, Christchurch and Dunedin, agents in New Zealand for Down Brothers, exhibited a special consignment of this English firm's surgical instruments. An extensive range of sterilizers, anæsthetic apparatus, including various patterns of Mackesson's designs and "true-colour" optics for electrically lighted diagnostic instruments were also displayed. Merson's surgical catgut preparations were specially demonstrated by Mr. G. F. Messon, F.C.S., F.R.S.E., the managing director of the well-known Edinburgh firm.

The New Zealand Drug Company, Limited, (Kempthorne, Prosser and Company) had on view a large assortment of surgical instruments, hospital furniture, sterilizers and general equipment. There were also microscopes and accessories, biochemical apparatus and other objects of interest to the medical profession. The surgical instruments were by Allen and Hanburys, Limited, instrument makers to His Majesty's Navy and Army.

The Stanford X-Ray and Radium Company, of Melbourne and Sydney, placed on view a variety of "Acme" X ray diagnostic and therapeutic equipment. Other electro-medical apparatus was shown, such as the Liebel-Flarsheim electric scalpel, diathermy medical and surgical appliances, steel X ray filing cabinets, developing tanks and so forth.

W. Watson and Sons, Limited, of Melbourne, Sydney and Wellington, the Australasian representatives of the Victor X-Ray Corporation, in addition to a display of X ray physio-therapeutic and electrical apparatus, gave repeated working demonstrations of the recently installed plant at the Dunedin Hospital for X ray diagnosis, deep X ray therapy, diathermy and ultra-violet medication. Mr. E. Jerman, M.I.E.E., the director of the education department of the Victor X-Ray Corporation, was present and delivered addresses on modern X ray technique.

Kodak (Australasia) Proprietary, Limited, had an exhibition of photographic and cinematographic apparatus, Eastman's "Duplittized X-Ray" films and X ray developing tanks. In some of the sections this firm controlled the cinematographic displays.

The Amalgamated Dental Company, Limited, formerly De Trey and Company and Claudius Ash, Sons and Company, Limited, exhibited a full range of the well-known "Solila" surgical needles (Firth-Breareley stainless steel), Castle and Pelton's hospital sterilizers and numerous dental sundries. This firm also displayed Caulk's "Mercurex" cream and soaps, "Sotol" mouth wash tablets and other proprietary lines.

Dressings and Corsets.

Potter and Birks (New Zealand), Limited, prepared an exhibit of the products of Johnson and Johnson, Limited, of Stroud, England, manufacturers of the "Red Chain" brand of cotton wool, bandages, adhesive plasters, ligatures and sutures and other surgical dressings.

Miss Pearl Anderson, of H.B. Buildings, Dunedin, showed a variety of hernia and kidney belts, maternity corsets, corsets for enteropneptosis and for post-operative support.

Miss F. Back, of Melbourne, exhibited samples of surgical belts, nickel-plated wire-woven trusses, various appliances for incontinence, colostomy-plugs, chin supports and other appliances designed by the exhibitor.

Microscopes.

Russells, of Dunedin, formerly of London, placed on view on behalf of Ogilvy and Company, some microscope illumin-

ating apparatus and also showed some microscopes, microtomes and other apparatus from the firm of E. Leitz, Wetzlar.

Books.

Messrs. Whitcombe and Tombs, medical and general booksellers and publishers, displayed a comprehensive series of English, American and Continental publications in medicine and the allied sciences. There were also many examples of this firm's own scientific publications of special New Zealand interest, including works on Maori ethnology. Over one thousand books were contained in the exhibit.

Mr. James Little, bookseller, of Melbourne, exhibited a collection of the latest productions of the American publishing house, W. B. Saunders Company, for which he is agent. Among the books on view were Moynihan's "Abdominal Operations" and Young's "Urology."

Drugs and Foods.

The New Zealand Drug Company, Limited (Kempthorne, Prosser and Company), displayed an exhibit which included samples of pills, tablets, medicated confectionery, ointments and tinctures of its own manufacture. "Bismogenol," "Nitroscleran" and "Ekzebrul," prepared by E. Tosse and Company, were also shown.

Mr. George Williams, Sydney, representative of the Denver Chemical Manufacturing Company and of the Bristol Myers Company, was responsible for an exhibit of "Antiphlogistine," the well-known substitute for poultices, and "Sal Hepatica," both standard preparations of established reputation. Another Bristol Myers product in this stand was "Iparia" tooth paste.

The exhibit of the Deshell Laboratories, Incorporated, was an artistic one. The colour scheme of a dark blue ground with light blue and gold banners enabled the exhibitor to incorporate in the background posters enumerating the salient points of "Petrolagar." This preparation is an emulsion of mineral oil of optimum purity and viscosity with agar-agar. The manufacturers claim that "Petrolagar" constitutes the ideal mechanical preparation for the treatment of chronic constipation. The exhibit was in charge of Mr. J. M. Hill, general manager of the firm for Australia, assisted by Mr. S. H. Martin, representative for New Zealand.

The R. Ewing Agency, of Dunedin, exhibited Mosso's "Oil of Salt," an antiseptic and analgesic application for first aid purposes in wounds and bruises.

Joseph Nathan and Company, Wellington, proprietors of "Glaxo," gave an elaborate display of the process of manufacture and of the finished product "Ostelin," a high concentration of vitamin D extracted from cod liver oil. "Ostelin" is an ingredient of "Glaxo-ovo," a food-drink preparation which was also exhibited.

The Sanitarium Health Food Company displayed many of the products of its own manufacture, such as "San-bran," "Granose," "Granola," "Gluten Meal," "Marmite," "Fruerla Essence." Literature dealing with vegetarian foods formed part of the display. Samples were distributed to members of Congress visiting the stand.

Typewriters.

The New Zealand Typewriters and Supplies Company, of Dunedin, had an interesting exhibition of all makes of portable and standard typewriters, office equipment, medical filing cabinets and the like. The room was in charge of Mr. A. E. Macdougall. This company rendered generous gratuitous assistance in connexion with the preparation of the notices displayed on the Congress notice board. The typewriters used in the Congress offices were lent without charge by the firm.

27.
copes,
Leitz,

neral
nsive
tions
many
eacial
logy.
ibit.
ed a
blish-
gent.
ninal

orne,
uded
oint-
nol,"
and

the
the
t of
ices,
tab-
this

ted,
blue
the
ner-
ion
and
hat
ion
was
for
for

so's
for

of
nu-
on-
bil.
nk

my
an-
e,"
an
ed

y.
of
al
of
is
of
ne
it

Australasian Medical Congress
(British Medical Association)

Transactions of the
Second Session
DUNEDIN

PRESIDENT:

SIR LOUIS G. BARNETT, Kt., C.M.G., F.R.C.S. (England).

February 3 to 10, 1927.

Sydney
THE AUSTRALASIAN MEDICAL PUBLISHING COMPANY, LIMITED,
The Printing House, Seamer Street, Glebe.
1927.

INDEX.

(The figures in italics refer to papers read.)

	PAGE.		PAGE.
GENERAL.		SPEAKERS (Continued).	
Committees—		Anderson, J. R.	212
Entertainments	3	Anderson, W.	85
Executive	3	Apperly, F. L.	153
Finance	3	Argyle, S. S.	137, 146, 222, 234, 326
General	3		
Ladies	3	Barber, G. W.	370, 379
Museum	3	Barnett, L. E.	5, 7, 38, 53, 177, 326, 327, 397, 438, 541, 542, 543
Reception	3		
Sections	3	Barrett, J.	44, 47, 100, 212, 218, 297, 365, 463
Meetings—		Batchelor, F. S.	75, 178, 542
Combined	13, 53, 146, 234, 309, 319, 375, 380, 388, 397, 429, 435, 474, 485	Baxter, R. H.	204, 298
General	541	Begg, R. Campbell	177, 341
Inaugural	5	Bell, F. Gordon	177
Sections—		Bell, G. Gordon	386
Medicine (I)	403	Biggs, A. C. B.	38, 438
Naval and Military Medicine and Surgery (X)	49, 122, 365, 466, 514	Biggs, A. M.	77
Neurology and Psychiatry (VIII)	100, 280, 424	Bignell, F. L.	53
Obstetrics and Gynaecology (III)	77, 178, 245, 408, 438, 488	Blackmore, G. J.	234, 241
Ophthalmology (VI)	39, 208, 363, 461	Bostock, J.	110
Orthopaedic Surgery (XI)	130, 298	Bowerbank, F. T.	61
Otology, Rhinology and Laryngology (VII)	90, 274, 413, 496	Brett, P. G.	191
Pædiatrics (IX)	116, 219, 465, 506	Brown, C. J. O.	192
Pathology and Bacteriology (IV)	192, 258, 343, 445	Brown, F. Bevan	68, 407
Preventive Medicine and Tropical Hygiene (V)	85, 455, 494	Buck, P. H.	10, 146, 166
Radiology and Medical Electricity (XII)	137, 219, 471	Bull, L. B.	196, 343
Surgery (II)	69, 167, 241, 337	Burns, C. R.	407
Special	528		
Members of Congress	3, 4, 5, 416	Cameron, P. D.	392, 438
Museum	543	Carberry, A. R. D.	52, 127, 130, 365, 375, 380
Preventive Medicine Museum	545	Carswell, W. E.	365, 464
Office Bearers	1	Champion, E.	37
Patrons	1	Cherry, P. T. S.	90
President	1	Cilento, R. W.	150, 400
Secretaries	1	Cleland, J. B.	196, 261, 346, 363, 445
Sections—		Corkhill, H. K.	493
Medicine	1	Craig, R. Gordon	76, 178, 244, 337, 341, 343, 397
Naval and Military Medicine and Surgery	2	Croll, D. G.	38
Neurology and Psychiatry	2		
Obstetrics and Gynaecology	2	Dansey, St. J. H.	172, 178
Ophthalmology	2	D'Ath, E. F.	346, 505
Orthopaedic Surgery	3	De Garis, M.	38, 166, 252, 445
Otology, Rhinology and Laryngology	2	Denehy, W. J.	280
Pædiatrics	2	Devine, H. B.	76, 167, 178, 244
Pathology and Bacteriology	2	Dew, H. R.	319
Preventive Medicine and Tropical Hygiene	2	Dickson, C.	462
Radiology	3	Diethelm, O.	485
Surgery	2	Drennan, A. M.	23, 68, 363, 488, 542
Treasurer	1	Dudley, S. F.	455
Vice-Presidents	1	Durie, E. B.	269
Popular Lecture	10		
President's Address	7	Ellis, C.	319
Staff Ride	518	Falconer, A. R.	298, 370
Trade Exhibition	545	Fenwick, D. E.	403, 407
		Fenwick, G. E. O.	44, 49, 365
		Fenwick, P. C.	471
		Fitchett, F.	68
		Foster, P. S.	176
		Fisher, W.	178
		Fulton, N. E. H.	437
		Gilmour, W.	346, 349, 363
		Gordon, C. H.	319
		Gordon, D. C.	488
		Gordon, K. F.	53, 466
		Gowland, W. P.	541, 542
		Greenslade, C. M.	177
		Gribben, St. L. H.	116, 298, 387, 428
		Gray, H. J.	280, 418, 423
SPEAKERS.			
Acland, H. T. D.	397		
Aitken, W.	370, 375		
Allan, R. Marshall	191		
Anderson, C. C.	36, 221, 239		
Anderson, E. Gordon	74		

	PAGE.
SPEAKERS (Continued).	
Gunn, E.	160
Guthrie, J.	37, 73
Guthrie, R. N.	221, 324, 327
Gutteridge, E.	418, 496, 500
Halford, A.	85
Hall, A. J.	47, 49, 218, 219, 280, 365, 461, 463, 464
Halley, G.	90
Hansman, F. S.	54, 160, 349
Hardwick-Smith, H.	75
Harris, S. H.	241, 245, 341
Harty, G. W.	44, 48, 212, 216
Hays, H.	420
Hector, C. M.	258, 261
Hercus, C. E.	12, 38, 241, 392, 460, 496
Heydon, G. M.	204, 206
Hipsley, P. L.	192
Hogg, C. A.	290, 416
Hooper, J. W. Dunbar	77, 82, 251, 445
Hopkirk, C. S. M.	346
Inglis, Keith	485
Jamieson, J. P. S.	192
Jay, H. M.	98
Jellitt, H.	82, 85, 185, 192, 251
Jenkins, J. A.	178, 244
Johnson, T. W. J.	407
Jones, D. W. Carmalt	295, 298, 405, 407, 542
Jones, W. Ernest	426
Kellaway, C. H.	192, 196, 269, 273, 388
Kilvington, B.	69, 77, 244
Kinna, A. L.	107
King, F. Truby	119, 122
Latham, O.	100, 116, 280, 298, 332, 352, 433
Lawrence, A. P.	514
Lee Brown, R. K.	337
Lethbridge, H. O.	460
Lewis, J. Brook	44, 46
Lindsay, A. Bonar	249, 252
Lipscomb, T. W.	432
Love, R. J.	534
Lynch, P. P.	200, 269, 346, 349, 363, 488
Lyth, C. E. W.	241
MacCallum, P.	435
Macdonald, J. G.	464
MacDonald, W. J.	100, 279
Macdonald, W. M.	365, 477
MacGibbon, T. A.	274, 280, 413, 418, 420, 423, 438, 500
Mackeddie, J. F.	69, 196, 200, 204, 327, 332, 479, 485
Macky, K. S.	303
Macnamara, J.	122, 261, 265, 269
Maguire, F.	49
Malcolm, J.	133
Marchant, E. L.	47, 365, 418
Maudsley, H. F.	116, 298, 474, 485
McArthur, A. N.	82, 85, 408, 438, 445
McCoy, H. A.	228
McGavin, D. J.	52, 175
McKibbin, T.	241, 460, 469, 496, 538
McLagan, B.	37, 460
McPherson, J.	116, 298
Mercer, W. B.	542
Minogue, S. J.	114, 384
Mitchell, L. J. C.	363, 462
Moppett, W. M.	451
Morgan, A. M.	39, 44, 47, 48, 212, 218, 365, 463, 464
Morgan, F. G.	263
Morkane, C. F.	82, 85
Moore, S. A.	116, 156, 166, 284, 298, 540
Morris, J. Newman	528, 541, 542
Myers, D. F.	221, 222, 306, 308, 474, 487, 488
Neil, J. Hardy	52, 100, 279, 370, 375, 418, 423, 505
Newland, H. S.	137, 175, 375
Noble, R.	424
North, C.	192, 251, 445
North, H. M.	113, 298

	PAGE.
SPEAKERS (Continued).	
Owen-Johnston, A.	298, 303, 380
Paget, T. L.	38
Palmer, H. W.	237, 241
Paradice, W. E. J.	127
Patterson, Ada	90, 319, 511
Pattin, H. Cooper	319, 543
Pearson, A. B.	200, 349, 363
Pickerill, H. P.	166, 273
Piness, G.	279, 349, 500, 505
Poate, H. R. G.	431
Pockley, F. Antill	44, 49
Pottinger, J. A.	137, 542
Praagst, H. F.	219, 221, 474
Prior, G. P. U.	107
Pulleine, R.	90, 279, 418, 419, 500, 505
Pullen, E. D.	433
Purdy, J. S.	52, 130, 370, 380, 494, 496
Radcliffe-Taylor, M. A.	306, 308
Ramsay, J.	76
Rhind, S. D.	201, 204
Riley, F. R.	82, 85, 191, 445, 542
Ritchie, T. Russell	160, 167, 397, 401
Robertson, Carrick H.	33, 177
Robertson, J. H. Graham	465, 511
Robertson, W. N.	413, 500
Royle, N. D.	130, 133, 137, 219, 303, 306, 308, 341, 343, 380, 431, 485
Russell, R. Hamilton	133, 137, 379
Schlink, H. H.	438, 445
Schwartz, Z.	463
Sear, H. R.	224, 485
Semmens, K.	153
Sewell, S. V.	53, 326, 403, 407, 429, 485
Shorney, H. F.	44, 49, 100, 208, 218, 365, 464, 500
Siedeberg, E. H.	192
Sinclair, D. L.	38
Smith, C. N.	306
Smythe, R. B.	53
Spencer, F. A.	465
Spiers, L.	192
Stawell, R. R.	30, 323, 326, 332, 485
Steenenson, K. R.	273
Stephen, E. H. M.	269, 465, 511
Stewart, W. Downie	5
Stokes, H. L.	319, 465
Stout, T. D. M.	175
Stowe, W. R.	141, 143, 144, 146, 221, 474, 488
Stump, C. W.	403
Summons, W.	59
Sutton, Harvey	20, 38, 85, 90, 166, 241, 312, 319, 380, 460, 540
Sweet, G. Bruton	121, 241, 319, 510, 516
Syme, G. E.	6, 177, 244, 393, 397
Tait, J. T.	243
Talbot, A. G.	49, 218, 365, 464
Talbot, L. S.	48, 365, 464
Tebbutt, A. H.	54, 160, 200, 261, 269, 273, 349, 358, 363, 488
Todd, R. H.	542
Tracy-Inglis, R.	122, 370
Trumble, H. C.	71, 77
Turner, A. Jefferis	116, 241, 317, 319, 465, 511, 542
Ulrich, F. F. A.	306, 380
Ussher, G. H.	465
Wade, R. B.	219, 377
Watt, M. H.	88, 531
White, J. Renfrew	133, 137, 303, 306, 309, 380, 484, 485
Will, J. L. A.	133, 303, 308
Will, T. A.	137
Williams, E. H.	465, 514
Williams, F. E.	192, 269
Wilson, A. M.	178, 192, 251, 309, 319
Windeyer, J. C.	82, 190, 245, 251, 319, 445
Wi-Repa, T.	438

	PAGE.
SPEAKERS (Continued).	
Wood, A. Jefferys	121, 263, 506, 511, 514
Woodhill, V. R.	54, 160, 349, 358
Wylie, D. S.	133, 379
Young, J. A.	6
SUBJECTS.	
Allergy of the Respiratory Tract	500
Anæmia, Pernicious	403, 405
Anæmias, The	196
Bacteriological Point of View, Cases of Interest	
From	127
Bladder Tumours, Surgery of Epithelial	337
Blood Formation	403
Blood Transfusion in Children	465
Bockhart's Impetigo	143
Bone, Inflammation and Tumours of	485
Cæsarean Section	178, 185
Cancer	435
Carcinoma, Squamous-celled, of Limbus	463
Cerebro-Spinal Fluid, Examination of	332, 352
Colon, Examination with the Opaque Enema	222
Colon, Pathological Conditions of	474
Crime and Insanity	384
Cripple in War and Peace	377
Crippled Soldiers, Treatment in War and Peace	375
Cystitis	129
Delinquency	380, 387
Diabetes Insipidus	144
Diet	160
Diet and Nutrition in Northern Melanesia	150
Diphtheria, Forecasting Outbreaks of	455
Dressing Stations, Work in Advanced	466
Duodenal Lesions, X Ray Diagnosis of	224
Dyspepsia, Reflex	219
Ear Disease, Middle	419
Encephalitis Lethargica	474, 477
Epiphysitis, Chronic	298
Erythroedema	506, 510
Eye-ball, Penetrating Wounds of the	461
Field, Medical Services in the	49
Finances of Congress	542
Food, the Tonics of	156
Gas Attacks, Protection of Civil Population Against	514
Gastric and Duodenal Ulcers	172
Radiological Appearances of	228
Gastric Function	153
Gastro-Enterostomy	167
Goltre	12, 20, 23, 30, 33, 36, 53, 54, 59, 61, 69,
71, 73, 74, 160	
Exophthalmic, Ocular Signs of	44
Hirschsprung's Disease	219
Hookworm	206, 397
Hospitals	534
Hydatid Anaphylaxis	319
Hydatid Disease	323, 324, 388, 392, 393
Hyperthyroidism	54, 349
Industrial Fatigue	494
Infancy and Childhood, Prevention of Disease	
in	309, 317
Infant Feeding	116, 119
Infectious Diseases of School Life, Prevention of	312
Insurance, National	538
Intraocular Infections	208
Kahn's Test	346
Kümmell's Disease	141

	PAGE.
SUBJECTS (Continued).	
Lachrymal Obstruction	47
Leuchæmia	196
Lymphangitis, Pelvic	438
Malignant Disease of the Skin	471
Maori Diet	146
Mastoid, Operative Treatment of Diseases of the	413
Mental Defectives	280
Mental Disorders	107, 110, 113, 114
Social Aspect of	284
Messines	49
Muscle Tone	130
Myxœdema	54
Neuro-Otology	90
Nurse, the School	85
Nurse, the Public Health	88
Obstetrics and Gynæcology	77
Ophthalmology and the Consulting Optician	216
Ophthalmology, Teaching of, to the Medical Student	363
Osteitis Fibrosa and Osteitis Deformans	485, 486
Osteoarthritis of the Hip Joint	306
Otitis Media, Acute	420
Paragonimus ringieri	204
Pathology, Comparative	343
Pathology in Mental Hospitals	100
Pneumothorax, Artificial	327
Poliomyelitis	258, 261, 263, 265
Practitioner, Private, and the State	531
Prevention of Disease	528, 531, 534
Prolapse	408
Prostatectomy, Suprapubic	241
Psychiatry, Teaching of	290, 295
Publotomy	249
Puerperal Sepsis	488
Radiology, Progress of	137
Ramisation	431
Raynaud's Disease, Surgical Treatment of	341
Recruiting for War Service	365
Red-Free Ophthalmoscopy	212
Renal Efficiency	201
Renal Infections, Ascending	192
Resolutions	541
Retinitis Pigmentosa	462
Rubin's Insufflation of the Fallopian Tubes	82
Sacralization of the Fifth Lumbar Vertebra	303
Sanatorium Patients, After Histories of	370
Sinusitis in Children	496
Skagrams	471, 474
Spastic Paralysis	429, 431, 432
Spheno-Ethmoiditis, Chronic	274
Spinal Tumours	479, 484
Spondylopathy, Post-Traumatic	141
Strabismus, Concomitant	39
Streptococci, Specific Localization of	269
Sympathetic Nerve Endings	433
Thyroid Gland, Tumours of the	349
Thyroid Tissue, Aberrant	358
Trematode Infestations in Northern Melanesia	400
Trial Labour	245
Tuberculosis, Pulmonary, in Young Children	234,
237, 239	
Tuberculous Lesions	445
Uterine Inertia	252
Ultra-Violet Light	511
Vestibular Reactions	98
Vincent's Angina	128
Visceroptosis	133
Voluntary Patient, The	424, 426, 428
War, Medical Organization in	122
Wassermann Test	346
X Rays, Differential Action of	451
Yaws	401

The "BYNO" TONICS

Elegant Pharmaceutical Products based on sound formulæ, that may be relied upon for their efficacy, good keeping qualities and palatability. The basis used for all these products is "Bynin" Liquid Malt, which on account of its intrinsic nutritive and digestive powers, is superior to syrup for the purpose.

"BYNIN" AMARA is a powerful tonic, hæmatinic and digestive, of special value in neurasthenia and allied conditions. To a great extent it is replacing Easton's Syrup.

"BYNO" HYPOPHOSPHITES is a restorative and tonic of special value in faulty nutrition and in convalescence. It increases the appetite and aids assimilation.

"BYNO" HÆMOGLOBIN is a unique preparation containing 15 per cent. of freshly-prepared Hæmoglobin. It is the pre-eminent blood tonic, and has proved to be most valuable in the various anæmias and in the convalescence.

"BYNO" PHOSPHATES is an improved chemical food, particularly valuable for children. The taste of the iron and other salts is effectively disguised. "Byno" Phosphates has no constipating effect.

"BYNO" GLYCEROPHOSPHATES is a concentrated tonic food of great value in general debility, emaciation and nervous dyspepsia. It is an improved product, containing the Glycerophosphates of Iron, Potassium, Calcium, Sodium and Magnesium in a stable solution.

"BYNO" LECITHIN is a valuable product containing in addition to Lecithin suitable proportions of the alkaloids of cinchona and nux vomica. It has proved to be a tonic and restorative of special value in cases of nervous debility and functional weakness generally.

Supplies of these products are obtainable at most Pharmacies.

A Booklet giving full particulars of the "Byno" tonics will gladly be sent to any Medical Practitioner on request.

ALLEN & HANBURY'S (AUSTRALASIA) LTD.

13, Market Street, Sydney.

Amytal

A New and Better Hypnotic

DEVELOPED IN THE LILLY RESEARCH LABORATORIES



Advantages

Small dosage
Rapidity of action
No undesirable after effects
Produces natural sleep
Patient awakens rested

Indications

Insomnia
Preoperative anxiety
Nervousness
Hyperthyroidism
Menopausal symptoms

Amytal is supplied in one and one-half grain tablets in bottles of 40

Insulin, Lilly

UNIFORM · PURE · STABLE

The First Insulin Commercially Available

For over four years we have been making Insulin on a commercial scale. As a result of continuous research and experience in manufacturing large lots, we are offering an Insulin that is pure, stable and constant in unitage within very narrow limits.

Insulin, Lilly, may be relied upon to give uniformly satisfactory results. Supplied through the drug trade.

ELI LILLY AND COMPANY
INDIANAPOLIS, U.S.A.

Distributors

CHAS. MARKELL & COMPANY
SYDNEY, N.S.W.

